

TECHNOLOGY DEPT.

Chilton's MOTOR AGE

NOVEMBER 1953

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DETROIT



In This Issue:

Servicing the Ball Joint Suspension

Tough BUT OH SO Gentle

TOUGH ON OIL-PUMPING • GENTLE ON CYLINDER WALLS



It's gentle because Steel-Vent's two wall-contacting steel sections have rounded edges which provide hairline contact and reduce drag to a minimum.



It's gentle because the Steel-Vent spacer has extra wide vents that let oil flow through freely for extra cylinder wall lubrication.



It's gentle because Steel-Vent is a flexible, low-tension inner-spring that rests only against the steel sections, letting them on the cylinder wall with minimum pressure.



Result: maximum life, minimum wear. Count on Hastings for complete coverage—in regular and chrome sets, Motor Engineered for each make and type of engine, for each engine condition and operating need.



SERVICE TIPS

FROM
PERMATEX



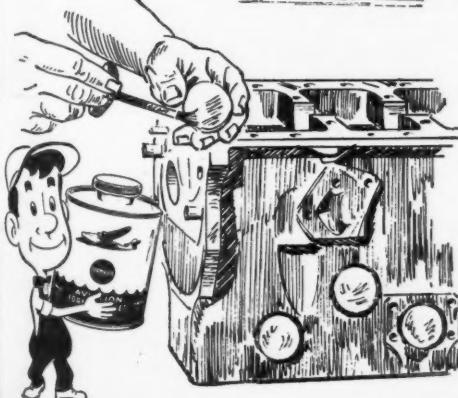
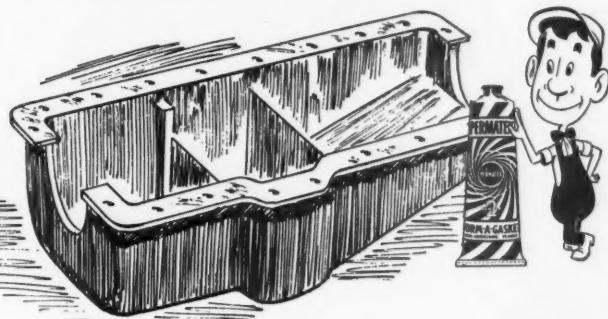
Saves Corroded Cylinder Heads

CLEAN OUT CORRODED AREA THOROUGHLY. BUILD UP FLUSH AND SMOOTH WITH **FORM-A-GASKET NO.1** — LET STAND UNTIL SET. BRUSH **FORM-A-GASKET NO.3** ON BOTH SIDES OF HEAD GASKET AND YOU'LL HAVE A PERMANENT REPAIR



Emergency Gaskets

A GOOD COATING OF **FORM-A-GASKET NO.2** ON TIMING GEAR COVERS, OIL PANS, ETC. WILL MAKE A PERFECT OIL SEAL WHEN GASKETS ARE NOT AVAILABLE



On Expansion Plugs

A COATING OF **FORM-A-GASKET NO.3** BRUSHED AROUND THE RIM AND INNER SURFACE OF EXPANSION PLUGS — WHEN MAKING REPLACEMENTS — WILL ELIMINATE SEEPAGE. PLUGS WILL ALSO PUSH OUT EASILY SHOULD THE BLOCK FREEZE



Form-A-Gasket withstands the enormous pressures of modern high compression engines. It is unaffected by gasoline, hot or cold oil, grease and water, anti-freeze. Always say **PERMATEX** Form-A-Gasket when you order sealing compound.

EVERY SHOP NEEDS ALL THREE TYPES

- No. 1 — Sets quickly. Dries hard.
- No. 2 — Sets slowly. Remains pliable.
- No. 3 — Brushable. Sets to a paste. Remains tacky.

FORM-A-GASKET.

PERMATEX COMPANY, INC., BROOKLYN 35, N. Y.

MORE THAN 50 CHEMICAL PRODUCTS FOR BETTER AUTOMOTIVE MAINTENANCE

A better Motor Oil had to be built



- and this is how we are telling millions of car owners about it!

A GREAT new product *built* for today's changing conditions called for a powerful new approach in motor oil advertising. The above illustration is spread across two magazine pages — in one of a series of advertisements introducing *Advanced Custom-Made* Havoline.

This advertising in the big national magazines reaches into every area of the U.S.A. The result? Millions of motorists are learning about this motor oil that is Made . . . not Born!

In advertising, in station display and Dealer promotion we are telling about this new oil that "wear-proofs your engine for the life of your car." Motorists with today's higher-speed, higher-powered engines will be buying more Havoline than ever.

Constant product improvement, plus powerful advertising and Dealer sales support, has always been our way of keeping Texaco Dealers out in front of competition. Here is one more example.

THE TEXAS COMPANY



*No wonder TEXACO DEALERS
are such busy dealers!*

Chilton's MOTOR AGE

WITH WHICH IS COMBINED AUTOMOBILE TRADE JOURNAL

Reg. U. S. Pat. Off.

For THE AUTOMOTIVE SERVICE INDUSTRY

LXXII, No. 12

November, 1953

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Tough sales talk for real selling

The automotive business is swinging back into good, old-fashioned competitive selling.

And here's an advertisement that's right in the swing—offering factual proof that "you get more for your money in any General Motors car you buy."

This dramatic example of the lengths GM engineers go to test out their product is the latest of the new series of "Key" campaign advertisements appearing monthly in leading national magazines—usually in double pages in four colors.

packages

stack well in freezers? If so, the packages falling. Also, by stacks, making the food

maximum use of freezer space, in square containers. If so, an important consideration

her's first fruits and

are two
are ripening. They
penned

in meet
through
completely
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growing,
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to
growing
at a

add 1

Spinach

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Soing
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leaves
dew-
land
land
boiling
water
cooking
and assu-
ing. Cook blanch-
ing water, remov-
ing leaves have
2. Wash thor-
oughly water to rid
3. Steam-blanch-
ing water since leaves
4. Cool immediately
5. Boil or cool
6. Put in any
freezing container.

Spinach

the as bluster
for freezing,
new variety which
in regions where
may be difficult to get
anywhere, green, large
garden variety will
frozen product.

1. Do not freeze old
Tender, slightly
are better for the
freezing.

2. Put 4 or 5 pounds
do not wash after
3. Wash blanch
a time. The time
of pea. Blanch
6 seconds; large pea
If you prefer to store
small pea will
large pea, 24

4. Chill immediately
water 3 minutes

5. Put any type of
container, full, and
6. Freeze immedi-

ately.

WATER HOMES & GARDENS



World's toughest engineering tests tell us how good our cars are

THE gleaming streaks of light in this photograph are the head and tail lights of cars—Chevrolets, Pontiacs, Oldsmobiles, Buicks, Cadillacs and their leading competitors in each price class.

They are being pushed round the clock in a 25,000-mile night-and-day endurance test, so that our General Motors engineers can see just how well other makes stack up with ours.

For, in a competitive business like the motorcar industry, you have to know all the facts.

And one of the best ways to find them is to give cars an intensified version of the wear and tear they'd get in normal usage—then dismantle them and subject each part to precise laboratory analysis to see how well it has withstood the test.

Of course, this competitive endurance run is only one of

the many tests we are constantly running off on our huge Michigan Proving Ground.

With all kinds of facilities, from 60 percent grades to Belgian block roads, we can test cars and trucks for springing, handling ease, hill climbing ability—anything we want to find out about. In addition, our Arizona Proving Ground provides high temperature and dust tests.

So—when our engineers say you get a lot for your money in a General Motors car—they're talking road-proved facts.

Yes—in the last quarter century these tests have added up to 140,000,000 miles of experience, contributing to the technological improvements in every Chevrolet, Pontiac, Oldsmobile, Buick and Cadillac. That's why the key to a General Motors car is bound to be your key to greater value.

GENERAL MOTORS

"Your Key to Greater Value—the Key to a General Motors Car"

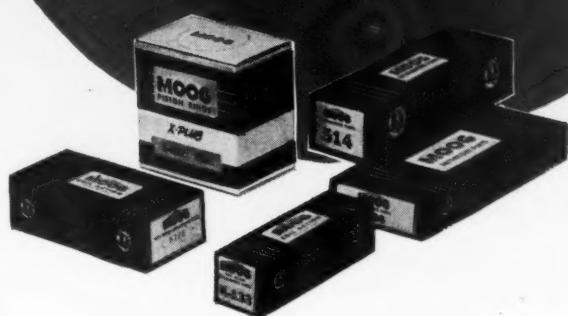
CHEVROLET • PONTIAC • OLDSMOBILE • BUICK • CADILLAC • All with Body by Fisher • GMC TRUCK & COACH



Put the Power of

MOOG REPLACEMENT PARTS

*Behind Your Service
Business*



Engineered to Compensate for Wear

For nearly 35 years, the replacement service field has looked to Moog for new developments in parts to meet the changing conditions in motor traffic. "Only Thru Moog" has become an accepted standard in spring suspension replacements. In motor reconditioning, Moog Piston Rings and piston expansion methods are outstanding. Moog cataloging and stocking offers the best *streamlined* service plus convenient warehousing from coast to coast. See your Moog Distributor today.

MOOG INDUSTRIES INC., ST. LOUIS 14, MO.



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COIL ACTION FRONT END PARTS

The most complete line on the market. Parts designed to do a better job than the ones they replace.

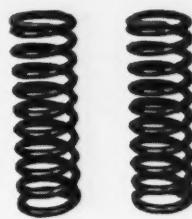


LEAF SPRINGS

Electrically Heat Treated Springs have been the leading line since 1919. Overload helpers, two stage helpers, plain and main leaves, and spring parts.

COIL SPRINGS

Moog Coil Springs in matched pairs, are the finest in coil springs.



CHASSIS PARTS

Precision-made Tie Rod Ends, Drag Links, Rods, Shackle Kits and Parts.

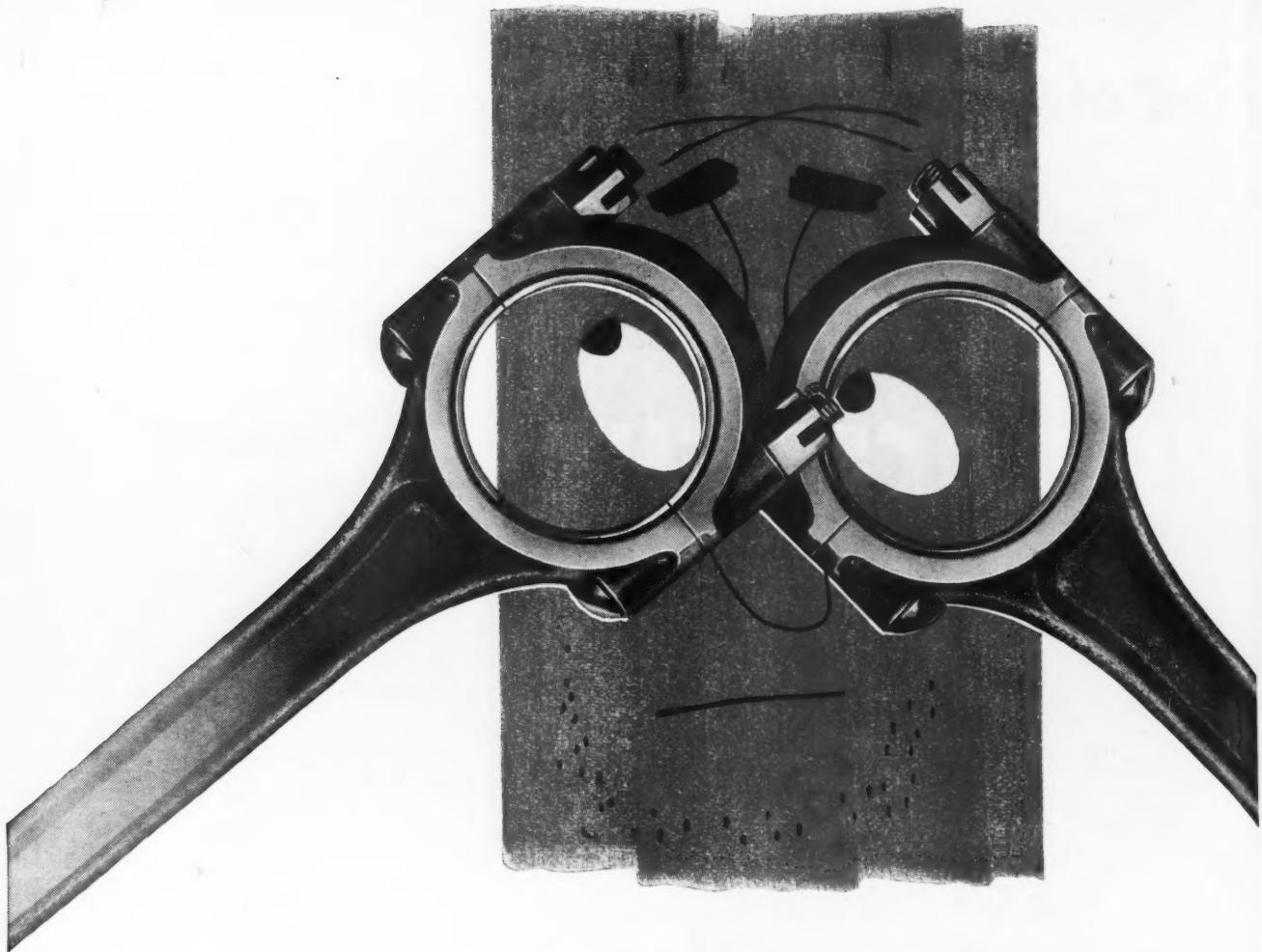


PISTON RINGS

Moog has both regular or chrome. The famous Moog X-plus for metered oil control and guaranteed full power performance; Moog 241 Chrome piston rings for extra service — Will seat — Won't Scuff.



MOOG DYNAMIZER restores piston to normal size by heat expansion — controlled dimension for better piston and piston ring performance.



WHICH ROD IS OUT-OF-ROUND?



Use Federal-Mogul
Exchange Insert
Connecting Rod Service
on Every Overhaul!

Who's to say? You can't tell by lookin' . . . and the average shop hasn't the equipment for a good job of checking.

Yet, you're begging for trouble if you put the engine back together with rods out-of-round by as little as one extra *invisible* thousandth! In today's high-horsepower engines, the bearings will soon be as badly out-of-round as the rod.

Don't take a chance—use Federal-Mogul exchange insert rods. They're completely reconditioned and have true, round bores. You'll do an A-1 job . . . every time! *Ask your Federal-Mogul jobber!*

FEDERAL-MOGUL SERVICE

(Division of Federal-Mogul Corporation)
DETROIT 13, MICHIGAN

Engine Bearings (Main, Connecting Rod and Camshaft) • Bushings • Connecting Rod Service—Exchange Insert Rods, Rebabbed Rods • Connecting Rod Bolts and Nuts • V-Seam Piston Pin Bushings • Shims and Shim Stock



Right for the Job!

DELCO-REMY EXTRA-OUTPUT GENERATORS AND MATCHING REGULATORS

(Medium Duty—40 and 50 Amperes)

Delco-Remy extra-output generators are an economical answer to the electrical needs of cruising taxicabs, suburban police cars, rural mail cars . . . other vehicles with additional lights, two-way radios, special electrical equipment in moderate to heavy-duty service. For this type of operation, these Delco-Remy extra-output generators offer the triple advantages of low initial cost, simple installation and economical maintenance.

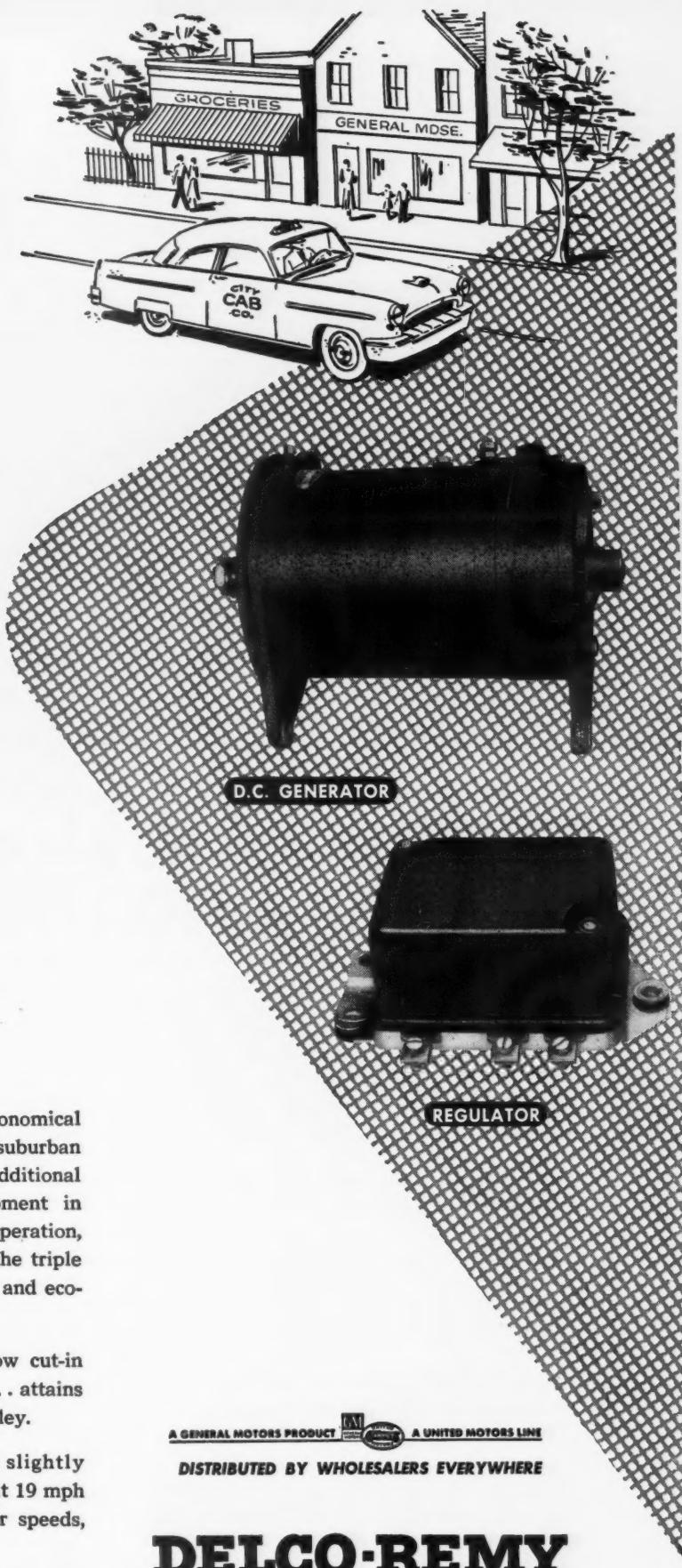
DELCO-REMY 40-AMP. GENERATOR has low cut-in . . . charges at curb idle from 11 to 17 amperes . . . attains full output at 18 mph when using a three-inch pulley.

DELCO-REMY 50-AMP. GENERATOR has slightly higher cut-in, about 9 mph . . . attains full output at 19 mph . . . for vehicles customarily operating at higher speeds, with minimum of slow driving.

See your nearest United Motors wholesaler for further information and application data.

W H E R E V E R W H E E L S T U R N O R P R O P E L L E R S S P I N

Chilton's MOTOR AGE, NOVEMBER, 1953



A GENERAL MOTORS PRODUCT  A UNITED MOTORS LINE
DISTRIBUTED BY WHOLESALERS EVERYWHERE

DELCO-REMY

Division, General Motors Corporation
Anderson, Indiana

A HUGE READY



No other spark plug line can match the **AUTO-LITE** program

- 1 **Auto-Lite Has Engineering and Manufacturing Know-How, Plus Advance Information**—Auto-Lite engineers, working with leading car manufacturers, know in advance demands of new engines . . . assuring your customers better performance.
- 2 **Auto-Lite Offers Sensational Sales Leader**—famous Auto-Lite Resistor Spark Plug . . . the first automotive resistor-type spark plug to be adopted as original equipment by leading car manufacturers.
- 3 **Auto-Lite is the Complete Spark Plug Line**—included in the line are Standard, Resistor and Transport types, Shielded Resistor Spark Plugs for Marine use, plugs for Inboard and Outboard Marine use and Diesel.
- 4 **Auto-Lite Gives You World-Famous Name**—since 1912, when Auto-Lite produced the first 6-volt electrical system with generator and motor as separate units, it has become the world's largest independent manufacturer of automotive electrical equipment.
- 5 **Auto-Lite is the Best Advertised Name in the Industry**—top-rated national magazine ads—big time "Suspense!" network TV and radio shows—coast to coast highway signs—exclusive AAA map tie-in—all build Auto-Lite acceptance.
- 6 **Auto-Lite Gives You Top Point-of-Sale Support**—proven sales material—identification signs, decals, counter cards, promotion displays plus wall charts and specification catalogs, bulletins and technical information.
- 7 **Auto-Lite Helps You with Field Service**—graduate engineers and field-experienced service men located in all districts, plus strong sales organization, help solve technical problems.
- 8 **Auto-Lite Offers Proven Dealer Sales Plan**—a complete spark plug line for maximum profits—R.S.D. price advantage on fill-in orders—flexible stock to cover all popular cars and trucks—promotion helps and factory mailings.



READY-MADE MARKET



**makes Auto-Lite
the spark plug
line for you!**

More than 15,000,000 vehicles . . . all equipped with Auto-Lite Spark Plugs . . . offer you a tremendous replacement market that means more sales—more profit! Experience proves it's easier to sell lines that come as original factory equipment . . . and Auto-Lite Spark Plugs are original factory equipment on many of America's finest cars, trucks and tractors. So cash in on Auto-Lite's huge ready-made market! Add Auto-Lite Spark Plugs to your next order. See your Auto-Lite jobber today!

**AUTO-LITE
SPARK PLUGS**



Auto-Lite Spark Plugs—Patented U.S.A.

TUNE IN "SUSPENSE!" . . . CBS RADIO MONDAYS . . . CBS TELEVISION TUESDAYS

There is no substitute for the
 6,500,000 miles of
Raybestos
 Proving Ground Tests

Raybestos PG Sets have a background of quality that just can't miss—6,500,000 miles of Proving Ground tests and 50 years of engineering experience. There's a factory packaged combination for every make and model of car and each one promises safer, surer stops and longer lining life. Use this quality and the famous Raybestos Brake Certificate to build yourself a service reputation and a sound, profitable business. You can count on Raybestos—as dealers have for 38 years—to help you pull in business with preselling ads in the leading consumer publications



LINED BRAKE SHOES or BOXED SETS
 in the correct brake lining combinations for every make and model of car. Bonded or riveted. Every piece branded for your protection.

CONSISTENTLY ADVERTISED IN THE
 POST AND Farm Journal

DON'T BUY INFERIOR BRAKE LINING. IT'S DANGEROUS!

Reline with
Raybestos
 PG SETS
 AMERICA'S BIGGEST SELLING BRAKE LINING

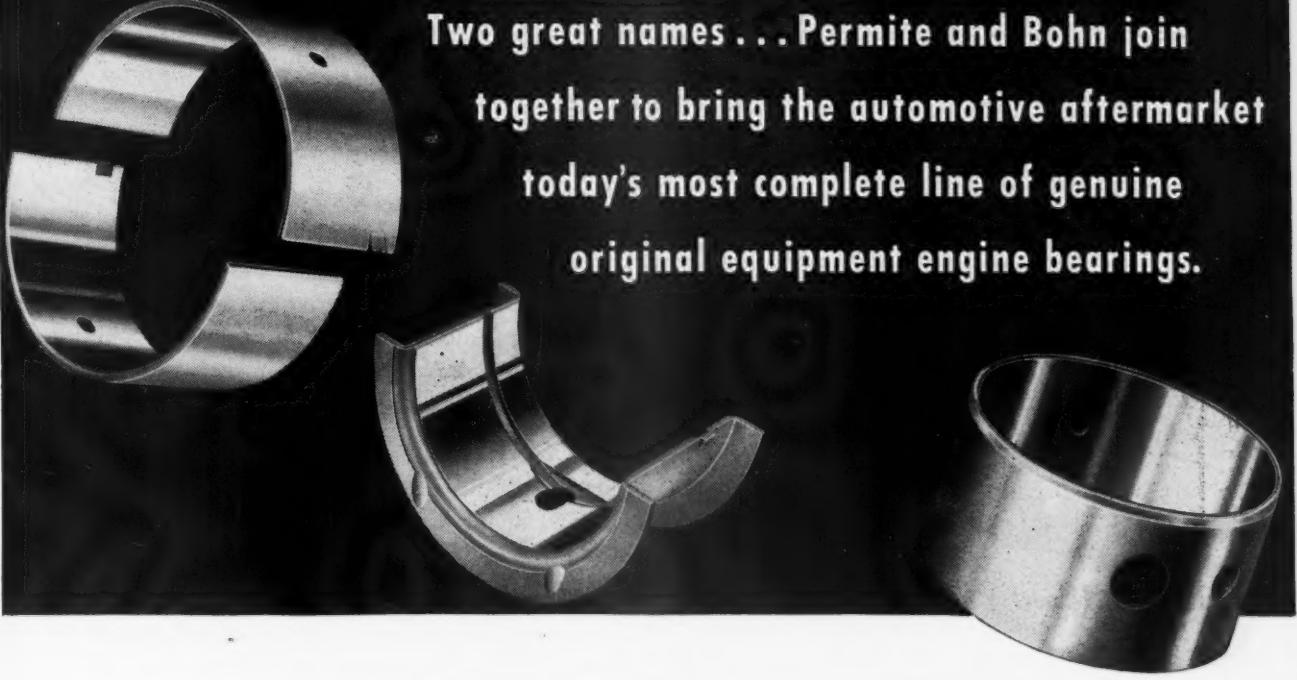


RAYBESTOS DIVISION of Raybestos-Manhattan, Inc., Bridgeport, Conn.
 RAYBESTOS-MANHATTAN, INC., Manufacturers of Brake Linings • Brake Blocks • Clutch Facings • Fan Belts • Hose • Industrial Rubber Products
 Rubber Covered Equipment • Asbestos Textiles • Teflon Products • Packings • Sintered Metal Products • Abrasive and Diamond Wheels • Bowling Balls



2 great names

PERMITE-BOHN



Two great names... Permite and Bohn join together to bring the automotive aftermarket today's most complete line of genuine original equipment engine bearings.

The Bohn Aluminum & Brass Corporation for years has been a leading supplier of engine bearings for original equipment, just as Permite for years has been a leading supplier of other original equipment parts for the aftermarket.

Now Permite has taken over the entire aftermarket output of Bohn engine bearings. Thus, today's most complete line of genuine original equipment engine bearings is available everywhere to the automotive service industry under the brand name PERMITE-BOHN.

ALUMINUM INDUSTRIES, INC. • CINCINNATI 25, OHIO

original equipment

Permite parts

the complete motor and chassis line

Where on this map can you get more sales ?



In the 2,362 shaded counties (out of the 3,071 U. S. total) more families read Country Gentleman than are reached by Better Homes & Gardens.

That isn't all! In nearly 2 out of 3 U. S. counties, Country Gentleman circulation surpasses that of *any* weekly, women's or home service magazine!

In *every* county—wherever there is good farming for good living—your best *rural* customers get useful buying ideas from the advertisements in Country Gentleman.

A manufacturer is giving you the kind of selling help you want—right in your local trading area—when he tells you "It's advertised in Country Gentleman"!

*Sells your best rural customers...
the customers other magazines miss*

—CIRCULATION NOW NEARLY 2,600,000—

A CURTIS PUBLICATION



**Now... YOU CAN STOCK ONE
HOLLEY CARBURETOR MODEL FOR
ALL 1934-52 FORD V-8's**

**NEW HOLLEY 2100
HAS IMPROVED DESIGN**

The new Holley Model 2100 is now the authorized replacement carburetor for all 1934-52 eight cylinder Ford passenger cars and 1939-48 Mercurys.

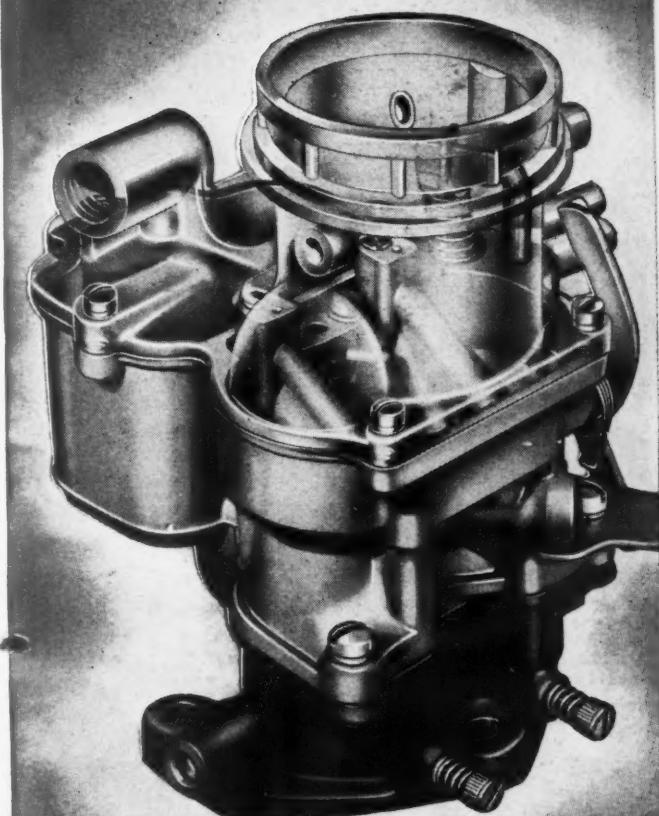
Previously, as many as six different carburetor models had to be stocked for this huge Ford market—a market which has more than seven million on-the-road prospects.

The Model 2100 has several important new design and engineering changes. High lift nozzle bars improve engine performance at extreme angles, and eliminate percolation or "vapor lock."

Servicemen are offered a choice of two conversion methods. The 2100 may be installed using parts from the old carburetor (without exception these parts are not subject to wear) or the serviceman may purchase a conversion kit of new parts.

A truck model, covering all 1942-48 Ford eight cylinder trucks is also available.

Phantom view of Holley Model 2100 carburetor shows new high lift nozzle bars.



FOR MORE THAN HALF A CENTURY ORIGINAL EQUIPMENT MANUFACTURERS FOR THE AUTOMOBILE INDUSTRY

5930 VANCOUVER AVENUE, DETROIT 4, MICHIGAN

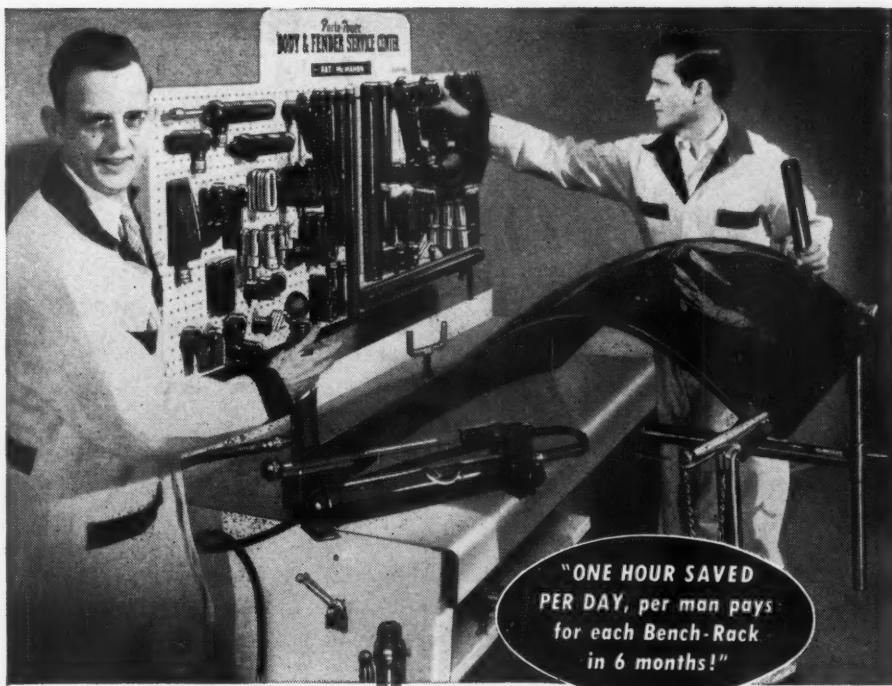
HOLLEY
Carburetor Co.

NEW PLAN BOOSTS BODY SHOP PROFITS UP TO 40% OR MORE!

Also helps sales of both new and used cars

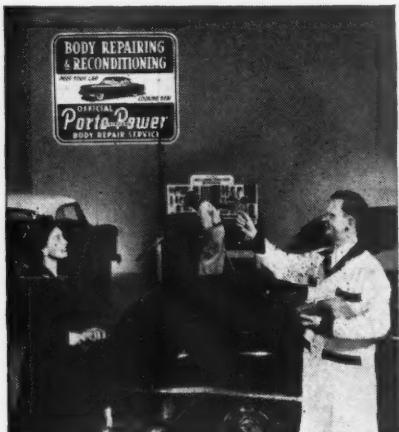
Blackhawk's new plan and new equipment for body departments is providing *double* benefits to dealers. First, it increases body shop profits, makes for better work and lowers costs on used car reconditioning. Second, this higher profit operation in body departments means more overhead absorption which, along with lower reconditioning costs, permits better offers on used cars, yet more profits on trade-ins.

Merchandising aids for body shop included in plan

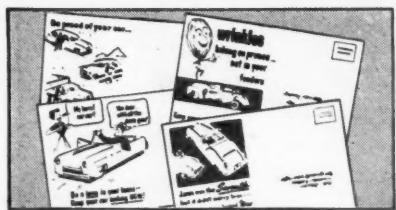


Bench-Rack creates a work center for every body man

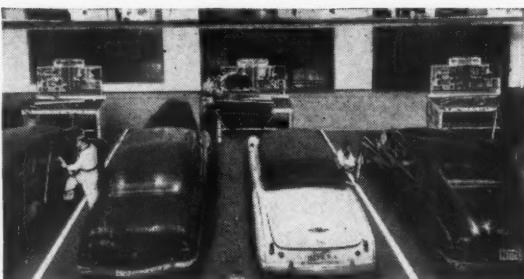
Heart of the revolutionary Blackhawk Plan for body shops is the "Bench-Rack" system. Combining a work bench and a holding rack, each "Bench-Rack" includes all Bantam and 10-ton general-purpose "Porto-Power" equipment necessary for rough-out work, *on or off* the car. Many dramatic new "Porto-Power" time-saving attachments are introduced to help produce up to 40% more labor dollars per man. Your Blackhawk jobber has a special presentation for you on "Bench-Rack" and the big Blackhawk "Dollars-from-Damage" Plan. Ask him for it TODAY or write us.



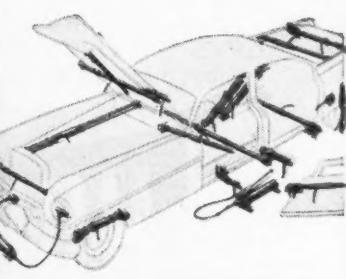
FOR THE FIRST TIME, a sign is available (for nation-wide public recognition) to let customers know you have a body department. This attractive three-color metal sign can be mounted inside or outdoors.



DIRECT MAIL AND NEWSPAPER MATS — these are part of the big Blackhawk package for body shop owners to use in getting more "Dollars from Damage." Also available: new shop manual and colorful shop posters illustrating basic "Porto-Power" set-ups and money-making applications.



ELIMINATES NEEDLESS WALKING, BORROWING, WAITING — And that means cost savings that make your selling job easy! "Bench-Rack" organizes the shop — each man has everything needed for work in his own stall. Body shops know this helps maintain schedules.



THIS PLAN, with "Bench-Rack" equipment, offers Blackhawk "Porto-Power" set-ups absolutely essential to profitably handle all 20 major body sections.

A Product of Blackhawk Mfg. Company, Dept. P-6113, Milwaukee 1, Wis.
Only **BLACKHAWK** makes **Porto-Power**

WHEN
BATTERIES
ARE
THIRSTY



...Call for the New

NO. 84 EDELMANN

BREAK-PROOF
BATTERY
FILLER



Brand New Design! New Flexible Material!

Every detail engineered for easier, faster battery servicing!

Large top opening designed for holding hydrometer. Light weight makes carrying easier — perfectly balanced even when full.

New safe-grip bottom prevents slipping or scratching.

Made of new resilient Polyvinyl Chloride — tougher, more rugged than rubber! Resists acid . . . oil . . . chemicals . . . extremes of heat and cold. One-piece molded construction eliminates seams — won't crack or break.

WONT BREAK,
CRACK OR TIP

- HOLDS MORE THAN A GALLON
- EASY COMFORT-GRIP HANDLE
- LONG FLEXIBLE HOSE FOR HARD-TO-REACH BATTERIES
- TOUGHER THAN RUBBER
- MOLDED-IN SOCKET FOR HANGING HOSE

CHOICE OF 4
SPARKLING COLORS!

E. EDELMANN & CO.
2332-56 W. Logan Blvd. • Chicago 47, Illinois

it's here now...

TWO

GREAT BATTERIES IN

ONE

to boost your winter TBA profits!

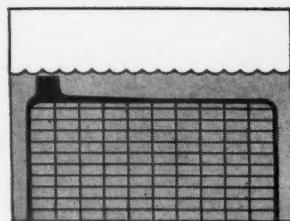
WILLARD STORAGE BATTERY COMPANY • Factories in Cleveland •

• Allentown • Toronto



Willard Weathermaster

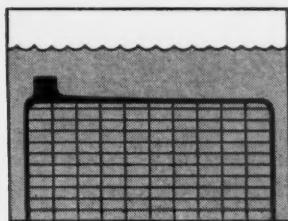
A POWERFUL
COLD WEATHER
BATTERY



At the turn of a key . . . low water level increases acid gravity . . . steps up strength of electrolyte. Gives 20% extra cranking power for quick, positive starting at sub-zero temperatures.

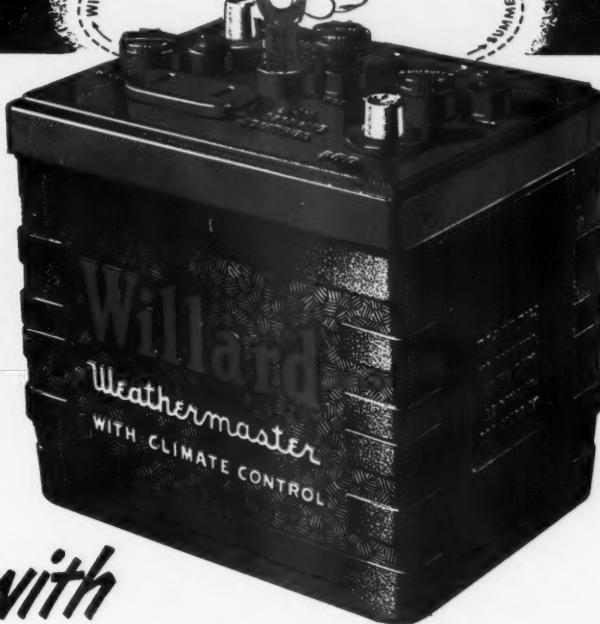
KEY-OPERATED CLIMATE CONTROL

A LONG LASTING
HOT WEATHER
BATTERY



At the turn of a key . . . high water level reduces acid gravity . . . keeps battery cooler. Less possibility of overcharging damage . . . less self-discharge due to high temperatures. Needs water only twice a year in normal use.

...with



Climate Control

The most revolutionary innovation
in Willard's half-century history

REGARDLESS
of the line you're handling

get the facts...

Call your Willard distributor

NOW!



Easy does it-
QUICKLY AND ACCURATELY
THE WEAVER WAY



You're right from the start when you begin with a

WEAVER

WHEEL ALIGNMENT OUTFIT

(outfits start at less than \$290)

The "WEAVER WAY" wheel alignment system is the fastest accurate and most complete method for checking and correcting wheel alignment. It is endorsed by both automobile manufacturers and service shops.

With a Weaver outfit, any mechanic in your shop can quickly become adept at checking and correcting camber, king pin inclination, caster, turning radius, and toe. You can choose from 3 different outfits, one starting at less than \$290.00.

The Model W-115 DeLuxe "Rack Type" Alignment Outfit, shown above, levels vehicle at convenient working height. All measurements, including

toe, are made from the spindle, thus avoiding errors due to crooked wheels and rims.

WJ-115 Outfit includes: 1 DeLuxe Alignment Rack, 2 "3-way" Alignment Gauges, 1 Tru-Way Toe Gauge, 1 pair Turning Radius Gauges, 1 Portable Wheel Alignment Tester, 1 Knee-Action Caliper, 1 Knee-Action Camber Correction Outfit, 2 Front End Service Jacks, 1 Service Jack Stand, 1 Safety Lift Stand, 1 Drive on Mirror, 1 Tool Display Board.

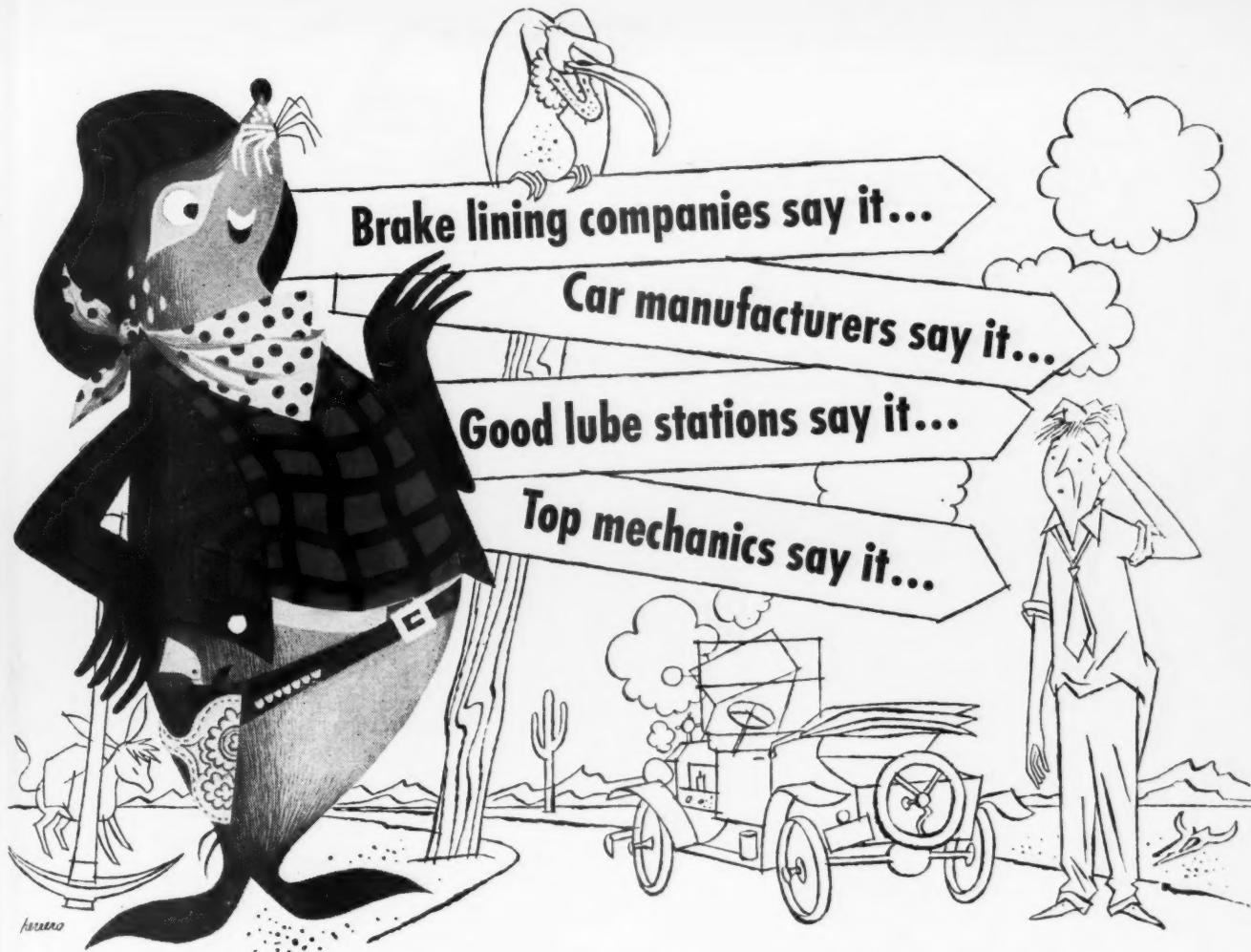
"Floor Level" model and two "On-the-Floor" models are also available. See your Weaver jobber for further information and prices or write us for Bulletin MA-486.

WEAVER

WEAVER MANUFACTURING CO., SPRINGFIELD, ILL., U.S.A.

SERVICE SHOP EQUIPMENT

Complete line includes: Twin Post Lifts . . . Unit Lifts . . . Car Washers . . . Wheel Alignment Equipment . . . Headlight Testers . . . Brake Testers . . . Wheel Balancing Equipment . . . Jacks . . . Wheel Dollies . . . and Air Compressors.



"Whenever you take out an oil seal, always replace it with a new one..."

Why lose time getting parts? National Service Stocks insure the right seals on hand, when, where needed. Jobber keeps stock up—no work for you. Cabinet comes with the deal. Ask your jobber for complete information.

Service stocks to fit your needs



FSS12. For lube stations, 58 popular front wheel seals.



FSS11. For garages, 114 fast moving front, rear seals.

...and be sure the new seal is a National! Take a brake relining. New seals are the surest way to keep dirt, water, grease off new linings. Car manufacturers and brake lining people all say "new seals" because they know their parts work best when protected best. Give the car owner a professional job, make extra profits at no extra work. Replace with new National Oil Seals—every time!

NATIONAL MOTOR BEARING CO., INC.

General Offices: Redwood City, Calif. Plants: Redwood City, Calif.; Van Wert, Ohio

2684

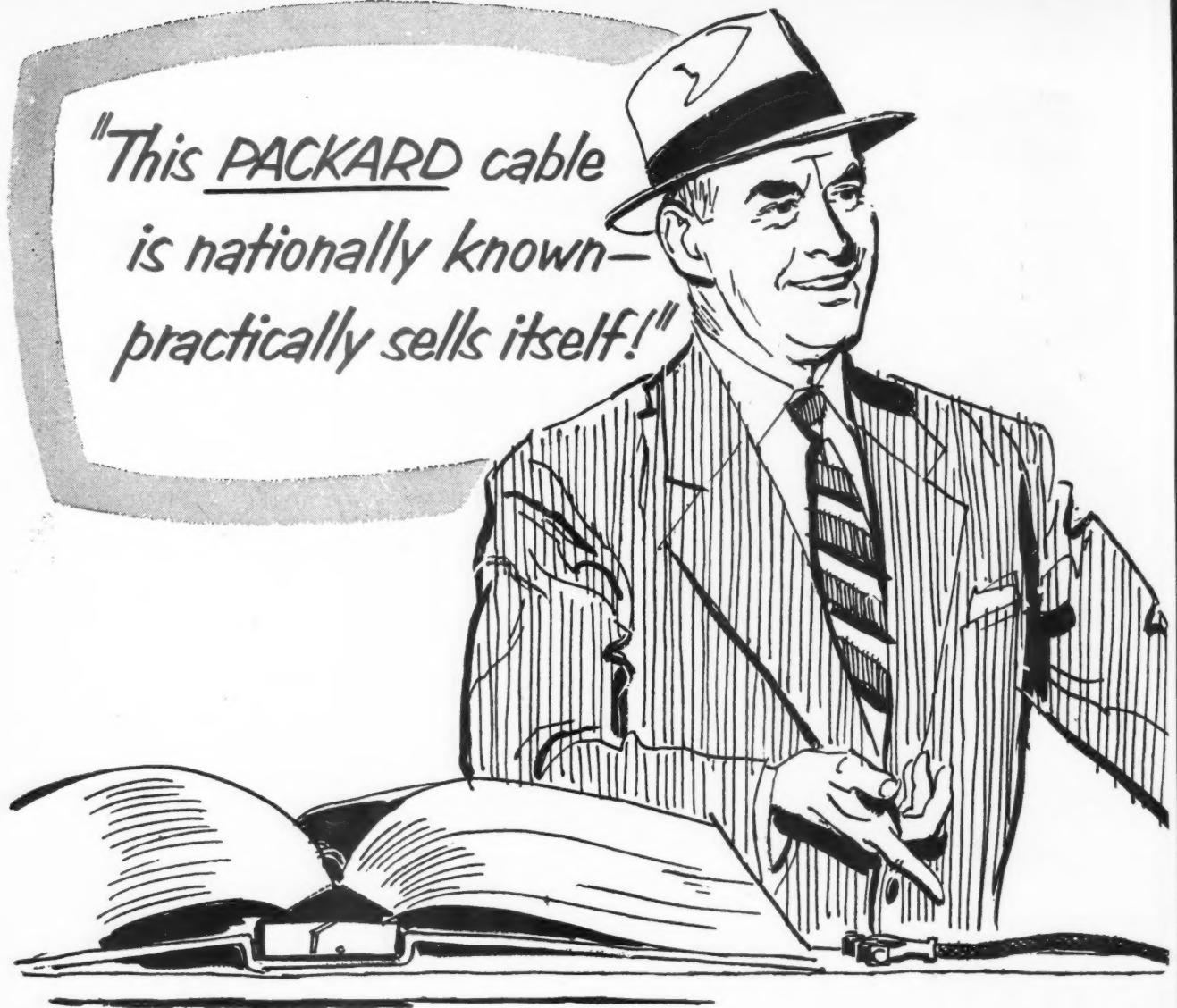


Support this
industry wide
program

NATIONAL
OIL & GREASE
SEALS
O-RINGS
SHIMS

Approved original equipment for all cars, trucks,
buses and tractors.

*"This PACKARD cable
is nationally known—
practically sells itself!"*



*Build up your business
with the "BIG 3"
in the cable field!*



The record shows that Packard cable is preferred by automotive engineers for cars, trucks, buses and tractors. Preferred, too, by vehicle owners and repair shops for replacement use. And preferred by jobbers and dealers because it has a quick turnover.

PACKARD BATTERY CABLE—Packard battery cables are used as original equipment on more cars, trucks, buses and tractors than cables of any other make. Packard battery cables are full size, full weight . . . are available with LEADALLOY terminals or leaded brass terminals. Both types are packaged in individual cartons—both deliver top performance—both have acceptance, everywhere.

FOREMOST BUILDER OF AUTOMOTIVE WIRING



PACKARD IGNITION CABLE—Long considered the standard of the automotive industry, Packard high-tension cable is original equipment on more cars, trucks, buses and tractors than any other cable. Packard FOUR-FORTY and Packard LAC-KARD ignition cables are designed to deliver balanced performance in every application. For dependability on the job, choose Packard!

PACKARD LOW-TENSION CABLE—As with Packard's two other products, Packard low-tension cable is used as original equipment on more cars, trucks, buses and tractors than cable of any other make. Packard's 249 COMPOUND insulation, by every laboratory test and by the test of long, hard usage in the field, has exceptional resistance to heat, oil, chemicals and abrasion.

Packard
REG. U.S. PAT. OFF.
TRADE MARK

Packard Electric Division
General Motors Corporation
Warren, Ohio

A GENERAL MOTORS PRODUCT



A UNITED MOTORS LINE

1 out of every 3 cars in America

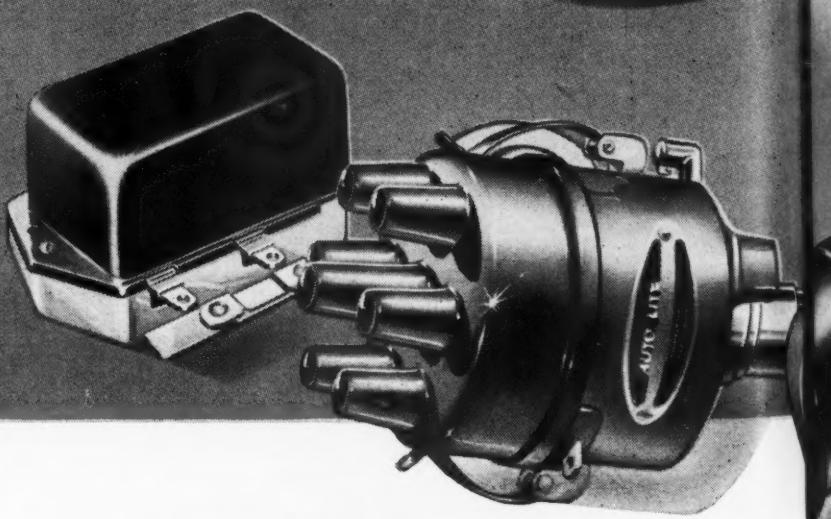


AUTO-LITE WIRE AND CABLE,

in spools and package sets...
a standard of quality
for every automotive, marine,
aviation and industrial electrical use.



AUTO-LITE "STA-FUL" BATTERIES need water only 3 times a year in normal car use. And they last longer!



AUTO-LITE ORIGINAL SERVICE PARTS
include generators, voltage regulators, starting motors, distributors, coils and thousands of electrical and mechanical component parts engineered for best car performance.

In America is equipped with



Outstanding quality and performance have made more than 400 Auto-Lite products for cars, trucks, tractors, planes, boats and industry world famous . . . convincing proof, "You're always right with Auto-Lite."



AUTO-LITE BULL'S EYE SEALED BEAM UNITS are designed for safe night driving. They concentrate more light on the road . . . burn even when the lens is cracked or broken.

AUTO-LITE SPARK PLUGS
... Ignition Engineered to give top performance in your car . . . include a complete line of Resistor, Standard, Transport and Marine types.

WALKER "PRECISION

THE



*GO-FACTOR

means the ability of the car to get into quick motion

...LOW-SPEED FLEXIBILITY



ACCELERATION FROM 0 TO 60 MPH



..POWER RESERVES FOR GREATER SAFETY



PRECISION TUNED for the new generation of engines and automobiles—now and to come.

Walker "Precision Tuned" Silencers are a Basic Part of the Modern Engine's "Breathing System" a Vital Influence in the Improved "GO-FACTOR"

In this new generation of engines, the most direct and practical route to the *improved* Go-FACTOR lies through *increased volumetric efficiency* . . . or the improved ability of the engine to breathe . . . to effectively utilize a greater charge or volume of air-fuel mixture and transform it into increased horsepower.

As a basic part of the engine's breathing system, proper exhaust system design exerts a vital influence on car performance . . . on its final horsepower rating . . . on its Go-FACTOR. No longer can yesterday's mufflers meet even the minimum requirements of these new standards.

And once again Walker sets the pace with "Precision Tuning" . . . a new generation of Walker Silencers to meet the new, complex problems of a new generation of engines.

Walker "Precision Tuned" Silencers are designed as an integral part of engine design . . . to quiet the heavier power notes of these new, more powerful engines without power loss . . . to specifically solve the new and difficult problems of shell noise . . . "transmission boom" . . . "tail pipe bark" . . . and still preserve the full measure of "traffic flash" and reserve power designed into every modern automobile.

Yes—Walker "Precision Tuned" Silencers bring out the "Go-FACTOR"!

WALKER MANUFACTURING COMPANY OF WIS. • RACINE, WISCONSIN

Exhaust Silencers . . . Oil Filters . . . Jacks

NOW MORE THAN EVER
WALKER

TUNING" BRINGS OUT GO FACTOR*

Here's how WALKER "PRECISION TUNING" solves THE PROBLEM OF SHELL AND TAIL PIPE NOISE

The intense explosion pulse of the new, high compression, increased horsepower engines creates difficult-to-control high frequency vibrations which may cause tinny, irritating shell and pipe noise.

WALKER "PRECISION TUNING"

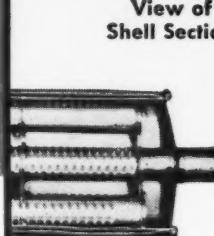
prevents obstruction to the free flow of pressure pulses which may reflect back in the exhaust pipe causing "pipe ping."

eliminates objectionable "head ring" by the use of specially contoured exhaust head constructions.

eliminates objectionable shell noise by using: ✓ double wrapped shells ✓ asbestos sandwich shells ✓ costly asbestos wrapped and steel covered shells

VARIOUS WALKER SHELL CONSTRUCTIONS USED TO REDUCE SHELL NOISE

View of
Shell Section



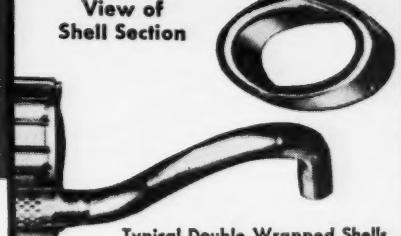
Typical Double
Wrapped Shell

View of
Shell Section



Typical Double Wrapped
Shell with Asbestos Insert

View of
Shell Section



Typical Double Wrapped Shells
with Asbestos and Steel Cover

- There are 54 Double Wrapped Shell Numbers in the Walker Silencer Line

- There are 19 Asbestos Treated Shell Numbers in the Walker Silencer Line

- Asbestos Treated Shells are also required in certain cases to reduce floor board heat



SILENCERS MAKE THE DIFFERENCE!



INDIVIDUALLY TUNED

for the millions of fine cars, trucks
and buses still in active service.

EXTRA QUALITY...especially for you

if you service Plymouth, Dodge, De Soto, Chrysler cars
or Dodge "Job-Rated" trucks



MoPar

means genuine Chrysler Corporation parts and accessories

Chrysler Corporation believes in "taking care of its own" by providing the best possible parts for its cars and trucks. These are MoPar parts—your assurance of the *extra quality* that comes from the very finest of materials, the most skillful design, manufacture and inspection.

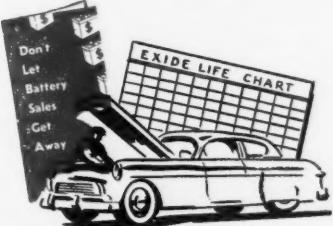
So make the MoPar sign your customers' guide to thorough satisfaction. Display the sign that means parts that fit right and work right. Recommend and install genuine MoPar parts and accessories—nationally known through coast-to-coast advertising in leading publications.

Switch to Exide...

HERE'S WHY:

Easier to sell

because Exide batteries have a reputation for extra high performance . . . extra long life . . . *complete dependability*. Selling the Exide line is good business, a repeat business . . . a real money-maker.



They stay sold

because of the high quality raw materials that go into every Exide, with rigid inspection to assure top quality day in and day out.

Priced right

Exide batteries give dollar-savers and quality-seekers *more for their money* . . . and provide good profits for the dealer.

SWITCH TO EXIDE . . . because Exide has everything you need to build a bigger, more profitable battery business: the famous Ultra Start, leader of the complete Exide line . . . low-priced, high-quality 6 and 12 volt battery service equipment . . . point of sale identification . . . direct-mail material . . . telephone listings . . . national advertising . . . and many other sales boosters available to Exide dealers.

IT'S GOOD TO BE AN EXIDE DEALER.

See your Exide distributor today.

The now-famous **ULTRA START**,
leader of the Exide line.

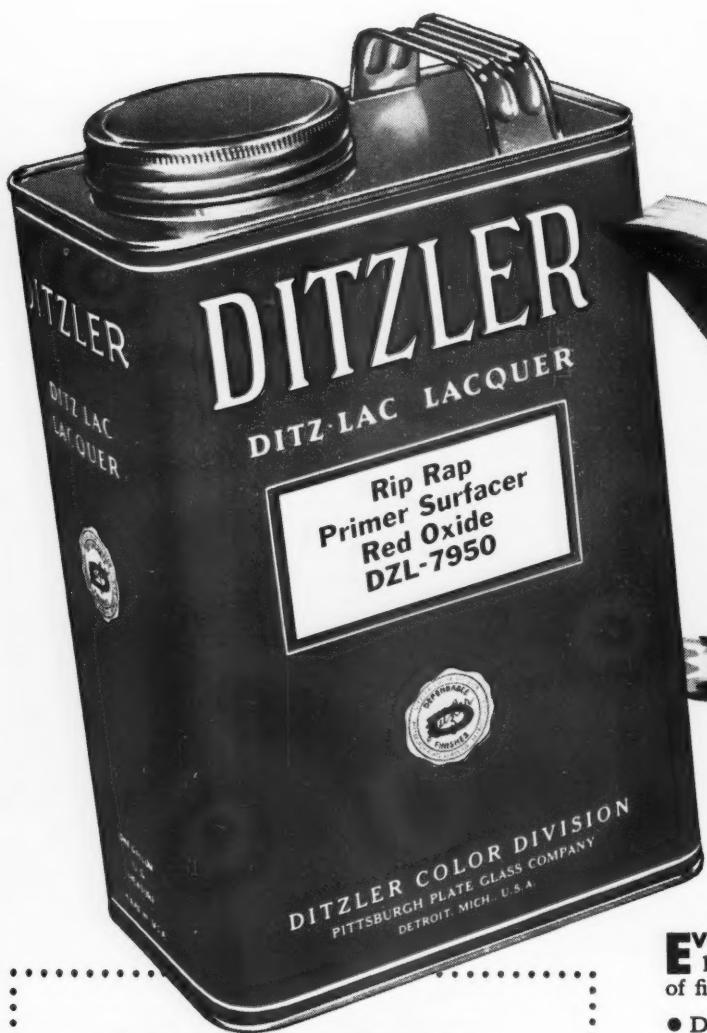


THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 2
Exide Batteries of Canada, Limited, Toronto

"EXIDE" and "ULTRA START" Reg. T.M. U.S. Pat. Off.

50 YEARS OF SPECIALIZING GIVE DITZLER
ITS EXCLUSIVE

KNOW-HOW



DITZLER RIP-RAP OFFERS YOU THESE 3 GREAT FEATURES

- 1 Unusually high solid content with more film-forming materials gives maximum filling—fewer coats are needed.
- 2 Unequalled adhesion contributes to durability of finish and keeps paint jobs looking better longer.
- 3 Superior hold-out assures the uniform appearance and maximum lustre of finishing coat.

Available in dark gray, neutral gray, red oxide and white.

EVERY DITZLER PRODUCT is the best that more than half a century devoted exclusively to the making of fine automotive finishes can produce.

• Ditzler began by making fine japan colors for carriages. These finishes were used on many of the earliest automobiles. As these vehicles evolved into the modern motorcar, Ditzler contributed to its improvement by developing and perfecting more attractive and longer-lived finishes. These coatings are now used in varying quantities by most of today's manufacturers of motor cars, trucks and buses. This acceptance was earned the hard way—by consistently *dependable performance*.

• Today, Ditzler's complete line includes everything needed to make an automotive vehicle look better longer. That's why so many paint shops use Ditzler Finishes exclusively. They know these superior finishes do the job more efficiently, more economically and with greater satisfaction to the car owner.

DITZLER COLOR DIVISION, PITTSBURGH PLATE GLASS COMPANY
Detroit 4, Michigan



DITZLER
PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS • FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

It takes all kinds of customers...



**...but they all want the best. And when it's
bearings, just tell 'em it's TIMKEN®!**

The best way to keep customers coming back is to let them know you use the best replacement parts. When you install a new tapered roller bearing, point out the trade-mark "Timken"®. Customers know it stands for quality and top bearing performance. The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

TIMKEN *TAPERED ROLLER
BEARINGS*

TRADE-MARK REG. U. S. PAT. OFF.



NOT JUST A BALL NOT JUST A ROLLER THE TIMKEN TAPERED ROLLER BEARING TAKES RADIAL AND THRUST LOADS OR ANY COMBINATION



WHY GO TO FRANCE BETTER

HIGH TENSILE

Nycar IS THE EXCITING NEW
HIGH TENSILE SEAT COVER MATERIAL
MADE FROM SPECIAL RAYON FIBERS.
COMPARE ITS LABORATORY TESTED
FEATURES WITH —

ANY FABRIC

(Domestic or Imported)

AT ANY PRICE

*

HIGH TENSILE

Nycar Developed and Manufactured
by ELLENBORO MILLS, INC.
ELLENBORO, NORTH CAROLINA

WHEN YOU CAN GET IT HERE AT HOME!

✓ **shockproof** *nycar* is unaffected by static electricity. No more painful shocks from sliding across your car seat in cold weather.

✓ **resists burns** *nycar* is highly resistant to burns from cigarette ash.

✓ **resists tears and abrasions**

nycar, made from specially treated du Pont rayon, has outstanding tear and abrasion resistance. See for yourself. Rub a small piece with a sharp edge of a key and note the results, then try to tear it.

HIGH TENSILE



nycar *

THE OUTSTANDING NEW MATERIAL
FOR AUTO SEAT COVERS

ELLENBORO MILLS, INC.,
ELLENBORO, N. C.

Looks good to me. Rush me samples and literature
on High Tensile *nycar*

I am a trimmer. Please send me names of
distributors handling *nycar*

I am a seat cover manufacturer. Please have
your representative call on me immediately.

Name _____ Title _____

Company _____

Street _____

City _____ State _____

Instead of simply saying **CHROME**
the industry is learning it pays to say

Sealed Power KromeX

FULL-FLOW RING SETS



MD-50 STEEL OIL RING
The only ring with the Full-Flow Spring
Best for oil control even in
BADLY TAPERED
and
OUT-OF-ROUND BORES



SEALED POWER CORPORATION, MUSKEGON, MICHIGAN

Sealed Power Piston Rings

BEST IN NEW CARS! BEST IN OLD CARS!

1 Top compression ring is chrome-alloy cast iron with **SOLID CHROME** face, factory-lapped to a light-tight finish, with Granosealed sides for flexibility.

2 Side rails of MD-50 oil ring have **SOLID CHROME** faces. Granosealed sides for flexibility. Hundreds of thousands of cars have proved this ring best for oil control even in badly tapered and out-of-round bores.

3 All rings in Sealed Power KromeX Ring Sets are beveled or tapered to thread-line contact for quicker seating and blow-by control.

**FIGHT HEAT,
FRICTION, ABRASION
CORROSION**
the four worst enemies
of piston-ring life





Newscoop

"I Cover the Detroit Autofront" ..by Len Westrate

THERE IS NO DENYING THE V-8 TREND, but sixes will still be around for a long time yet. Ford will increase output of sixes in the months ahead. Chevrolet gets its new V-8 engine some time next year but undoubtedly still will have sixes in its line, and the same is expected for Plymouth, if and when it goes to a V-8, as now seems likely.

EVEN IF CURRENT TALKS BETWEEN HUDSON AND NASH on merger possibilities do not pan out, look for similar activity among other independents over the next year or two. The feeling is growing that the fiercely competitive struggle developing will make some kind of a combined effort to cut production costs almost a necessity for the smaller companies. It may be a corporate merger or some type of cooperative program whereby common body dies or other components, or perhaps a basic engine, could be used by two or more companies to reduce overhead charges per vehicle.

SO-CALLED "BLITZ" OR "100-A-DAY" SALES by Ford and Mercury dealers, under criticism by competitors and NADA, are defended by the company as good merchandising. Ford admits some dealers are stretching their advertising claims with such devices as "\$1 over invoice" and is requesting that such practices be stopped. However, it approves the general merchandising principle, pointing out that financial statements show dealers participating in the sales are doing better than those refraining.

NASH, ALONG WITH OTHER COMPANIES in the industry, will step up its horsepower next year. An 8.5 compression ratio is slated for the Statesman, but an even more significant feature is that it will still operate on regular gasoline. Also, contrary to some reports, the 100-in. wheelbase on the Rambler will not be abandoned but a 4-door sedan and station wagon will be added to the line on a 108-in. wheelbase. The NXI sports car, built in England, is slated for introduction in February. A few have already been shipped here but will be held until announcement time.

SEARS ROEBUCK REVEALED THAT IT HAS ABANDONED merchandising the Allstate automobile which it had been selling in 17 of its stores since December of 1951. Sears actually began liquidating its stocks last July and now is completely cleaned out of the Kaiser-made car and has written the venture off as a failure. The company sold about 2,600 Allstates in 20 months. A Sears spokesman said the actual loss was very small. He added that Sears has not abandoned the idea of again getting into the automobile business at some future date.

GIRDING FOR ONE OF THE TOUGHEST COMPETITIVE YEARS in its history, the automobile industry is getting extremely cost conscious. Expenditures for activities approved without argument during the previous plush years are getting a fishy eye from management. Elimination of the excise profits tax under which many activities were carried on with "30-cent dollars" will heighten the economy trend.

FORD PROBABLY WILL BRING OUT A NEW CAR in its line in about another year. It is designed to compete in the price class between Mercury and Lincoln now occupied by such cars as Buick, the higher-priced Oldsmobile, De Soto, Chrysler Windsor, and others in that price area. It probably will be called the Fairlane after the Henry Ford ancestral home.

WE HEAR THAT AT LEAST ONE GM CAR NEXT YEAR will feature a fresh air intake across the cowl rather than behind the grille as heretofore. General Motors will have new bodies on Oldsmobile, Cadillac and Buick for 1954, featuring wraparound windshields and other innovations.

HUDSON APPARENTLY IS THE ONLY COMPANY to abandon Hydra-Matic because of the General Motors plant fire. Hudson has adopted the Borg-Warner drive but Nash, Kaiser, and Lincoln are staying with Hydra-Matic, which now is back in production at GM's Riopelle plant in Detroit. Lincoln, however, is working on an automatic transmission of its own, probably a larger version of the current Merc-O-Matic.

LOOK FOR KAISER TO CONCENTRATE ITS ACTIVITIES in Toledo at the Willys plant, possibly abandoning Willow Run altogether. The company is anxious to sell the large Willow Run plant, reportedly offering it to one of the Big Three. Also, General Motors neither admits nor denies that it made an offer to buy the plant, where it now is leasing a large area for production of Hydra-Matic transmissions.

IN LINE WITH REDUCING COSTS FOR THE BIG FIGHT with Ford next year, Chevrolet probably will go to linkage type power steering, which is less expensive than the integral type now used. GM's Saginaw Division now makes both types.

REPORTS THAT THE CHRYSLER CORPORATION will bring out its 1955 models next May are absolutely unfounded. We have it from top management that there is no possibility of having new models ready anywhere near that early in the year.

PROJECTIONS ON THE AUTOMOBILE MARKET FOR NEXT YEAR already are coming in. Industry officials look for about a 10 per cent decline to somewhere in the neighborhood of 5.2 million units produced, and sales of around five million.

EXTREMELY RELIABLE REPORTS INDICATE that the experimental car being driven by C. L. McCuen, GM vice-president in charge of research, when he crashed through a guard rail at the GM Proving Ground recently, was powered by a gas turbine. GM is known to have such a car and one of its top turbine research men was at the track at the time. McCuen suffered a concussion but is recovering.

Washington Wire by Ray M. Stroupe

AUTOMOTIVE TRIM AND ORNAMENTS with a nickel finish may soon become more plentiful. The governments of the United States and Canada recently took controls off nickel and nickel-bearing alloys. Supplies are said to be large enough for defense and stockpile needs without control system. Electroplaters and manufacturers can move ahead on bright-finish equipment orders.

BUSINESS EXPENSE CLAIMS ON INCOME TAX RETURNS must look entirely convincing if Internal Revenue Service approves them in the future. These officials aren't concerned about legitimate expenses. What they want to reduce is the number of parties and junkets which somehow become business sessions. Congress also may look into tax laws covering these claims.

CLASSES FOR SOME 5,000 CAR AND TRUCK MECHANICS each year are planned to take place in a new Washington-area training center. An auto company (GM) will build the eight classroom school. Design calls for a brick and steel building with a floor area of 26,000 sq. ft. Each classroom is to contain special tools for use as training aids. A staff of nine will operate the school.

BACKERS OF A HIGHER NATIONAL MINIMUM WAGE RATE may get White House support in asking Congress to raise the floor to \$1.25. The law-makers aren't expected to agree to this 50-cent boost over the present minimum. The idea is to ask for twice as much as Congress may allow. The result could be a 25-cent increase.

SIDETRACKING HIGHWAY-USE TAX REVENUE into non-highway projects is beginning to look less serious. Twenty-five states and the District of Columbia last year channeled about 24 per cent less of their highway taxes into such projects than they did in 1951. Still, the amount spent was more than \$200 million. In Florida alone, the total of highway taxes going for non-highway purposes was \$25 million.

GETTING RID OF ITS SYNTHETIC RUBBER FACTORIES may be a tougher job than the government expected. Rep. Paul W. Shafer (R-MICH.) says some Senators insisted on writing "unreasonable requirements" into the plant disposal law which took effect last summer. The government, he believes, may find itself holding \$700 million worth of old-style plants after industry builds more modern factories.

THE INTERNAL REVENUE SERVICE HAS GIVEN the retailer some help on use of excise tax reporting Form 720. Until next July, the merchant will be required to fill out only a single column--Column 6 under Schedule A. Meanwhile, retail groups intend to work with the agency in turning out a much simpler form that will do the job.

NEW COURT ACTION IS AWAITED in connection with large-scale sales of replacement tires and tubes. The U. S. District Court in Washington, which first had refused to judge the merits of the government's quantity discount rule, now must do so. The rule bans any discount greater than that allowed for single car-load lots, no matter what size the order is.

WHITE HOUSE OFFICIALS ARE WELL AWARE that high employment and healthy earnings are needed as stoppers against a business decline. If one should start, though, and money appears to be going into hiding, one safety measure would be to lighten the tax burden. The Administration also would call for easier credit terms to permit firms to expand and keep employees on payroll.

The U. S. Economy by Frank A. Bozek

THE AMERICAN CONSUMER IS PROSPEROUS in fact, and not just by inflation, James Cope, vice-president of Chrysler Corp., told the Financial Public Relations Associations national convention. Not only have consumers been buying judiciously but they have held back enough cash to buy an unbelievable further amount of the products of our factories and farms.

FOUR OUT OF TEN CONSUMERS HAVE NO DEBT at all. Holdings are nearly nine times the total of outstanding debts. Liquid assets in savings and bank accounts and United States bonds exceed the total of their debts. Only 11 per cent of the spending units owe more than they own. This year has all the signs of ranking as the second biggest in the history of the automobile industry in number of vehicles made and sold.

A GOOD MANY SPECIALISTS ON TRENDS have been saying that this kind of thing was not going to continue. First, the public was going to stop buying about the Fourth of July. Then Labor Day became the terminal. On the day following each of these holidays people continued to disregard expert opinion. The public is buying today at a greater rate than this time last year and customers have serious intention of buying tomorrow and the next day.

IN DESCRIBING POTENTIAL AUTOMOBILE MARKETS, Cope said statistics show there still are 17 million American families that don't own a car; eighty-nine per cent of car owning families have only one car; twenty-nine per cent of the farms in the United States have neither a car nor truck; nearly thirty per cent of the people between 30 and 40 years of age still don't drive; and one-fourth of the automobiles and one-fifth of the trucks in use in America today are of pre-Pearl Harbor vintage, a dozen or more years old.

TOTAL EMPLOYMENT REACHED A NEW HIGH of 63.4 million, an increase of close to one-million during the last 12 months. The increase in weekly earnings during the last year has been \$7.50, or more than 10 per cent. Weekly earnings of employees has risen to a new peak of \$72.

TOTAL EXPENDITURES BY CONSUMERS has not risen quite so much as the increase in income and reflect some hesitancy in buying as well as increased savings by many people. They have not been enough to absorb all the goods being turned out by factories but the difference has so far not been very large. A change in buying attitude could bring about a favorable change; purchasing power is great enough, provided it is used.

PRODUCTION OF HOUSEHOLD GOODS has shown some improvement and the output in most lines is running a little above that of last year. Activity among companies making household electrical appliances has changed very little; a major exception is the large number of television sets produced.

CONSUMPTION OF RUBBER CONTINUES to be large, with gains of more than 15 per cent over last year. Natural rubber consumption during the first part of the year was up 33 per cent, with the use of Synthetic rubber increased eight per cent. Tire manufacturers produced 20 per cent more tires than last year and also 10 per cent more than in the corresponding period of the peak year.

Report to Our Readers



Opportunities Unlimited

HERE are opportunities unlimited for good workmen in the automotive service business. There are so many jobs to be done in the months to come that it is neither too early nor too late to step up individual and collective training programs.

In the next three years there will be four times as many cars in need of major repair (4 to 9 years of age, inclusive) as there were in 1951.

In the past fifteen years car mileage has doubled. But the number of young men being graduated from trade, vocational or technical schools in auto mechanics has remained about the same.

Something's being done about it—but it's an industry-wide problem calling for an industry-wide solution. Chevrolet has completed a mechanics' training course in which nearly 26,000 men from 90 per cent of all Chevrolet dealers participated—20,234 were rated as "approved" mechanics, 4,963 as body mechanics and 750 as radio technicians.

Tool and equipment manufacturers are doing excellent work in training men to use profitably the latest in work-saving money earning equipment.

Training films, demonstration models and factory help are all available. Manufacturers' manuals and bulletins can be studied for worthwhile help. Your favorite trade magazine is one of the strongest forces in adult education. Use these to train men for the big job ahead.

To See Ourselves as Others See Us

WE choose this opportunity to offer our humble thanks to those readers who answered questions put to them by the Staff of National Analysts, Inc., a market research organization.

Over the past year in 43 cities and counties throughout the country, MOTOR AGE readers were asked to express themselves on the helpfulness of editorial material in three specific issues of MOTOR AGE.

The results awoke unbidden pride but temptation is brushed aside when we realize what good these findings lead us to. The information given in this valuable independent study of reader practices will serve as a bright-beamed guide in our future plans for the continued improvement of MOTOR AGE.

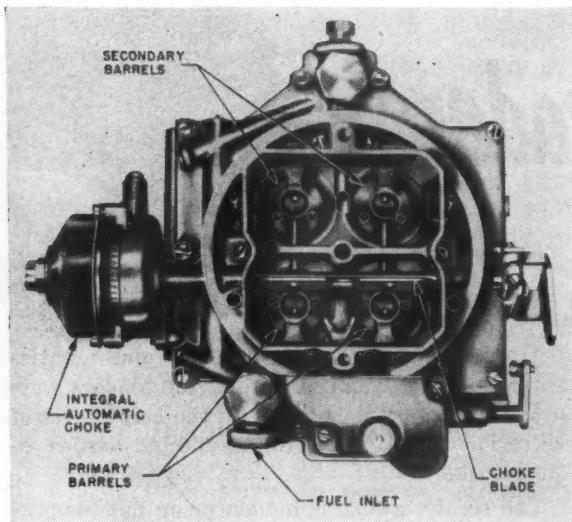


Here's a picture of Mr. Average MOTOR AGE Reader . . . he's been servicing or selling automobiles over ten years . . . he's in his forties . . . generally speaking, he reads MOTOR AGE at his place of business, but nearly 39 per cent of his brother-readers take the magazine home to read and study. . . . He likes Shop Kinks best of all of our regular features . . . rates Service

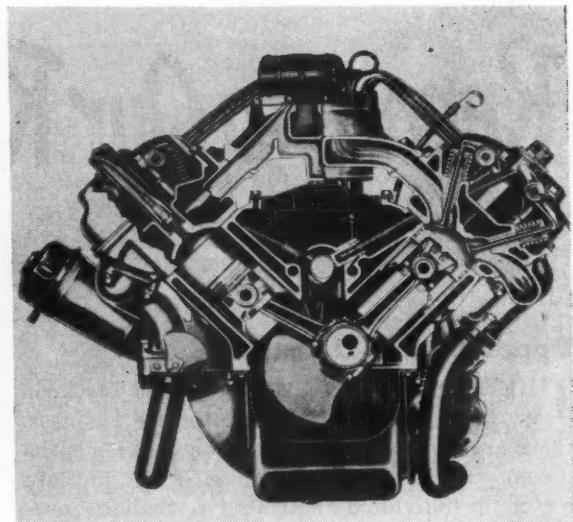
articles and Management articles second and third, respectively . . . 7 out of 10 Mr. Average Readers read every issue of MOTOR AGE. . . . He spends 2 hours and 22 minutes reading his favorite publication, including a half hour reading advertisements. . . . He looks for helpful and profit-producing ideas (and finds them!) . . . He refers to each issue six times . . . keeps it for two years . . . passes it along to mechanics and other employees. . . . For the most part (95 per cent) he is the owner, partner or executive.

We say, Mr. Average MOTOR AGE Reader is a dandy fellow. We want to keep on serving him better and better each month.

Frank P. Tigher
EDITOR



The new four-barrel carburetor, air cleaner, intake manifold and exhaust system improve breathing.



A cross-sectional view of the V-8 engine, which has larger valves and dual exhaust.

235 hp. For '54 Chrysler

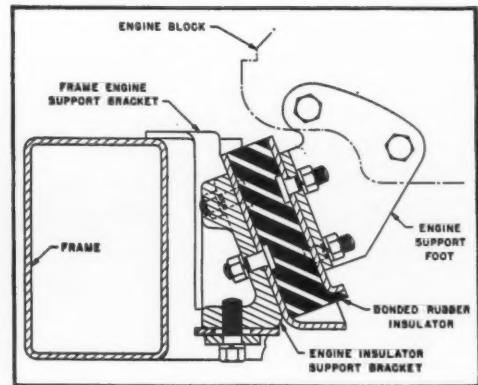
The most powerful engine in any mass-produced American car is offered by Chrysler for 1954

REDESIGNED Chryslers for 1954 introduce a new 235 hp FirePower V-8 engine, PowerFlite fully-automatic transmission, a new Airtemp air conditioning unit, full-time power steering and power brakes, and anti-roll front suspension.

Chrysler's rear bumper and tail lamps are new, as is the one-piece wrap-around rear window. The separate tail, backup, and stop lights are combined into a vertical unit. Thick bands of chrome surround and hold lamp lenses. The directional lamps are in the chrome frame below the headlamps. The lamp lenses feature a different idea in design with arrows set into the plastic lenses for clearer turn signalling.

(Continued on page 128)

Below. The Chrysler New Yorker sedan, with newly styled grille and exterior trim. At the right is a sketch of the new shear-type engine mountings.



De Soto Features Improved Styling and Performance

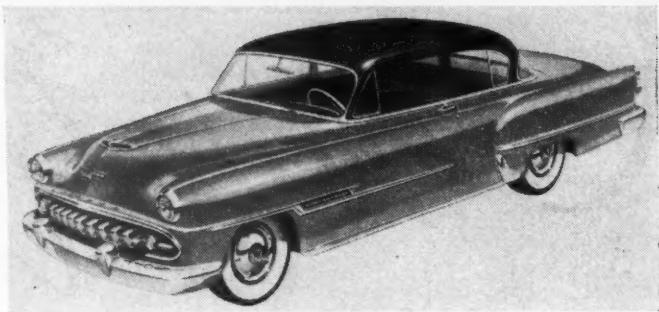
Increased horsepower, refinements in styling and adoption of Power Flite transmission are featured for 1954

FOR 1954, the De Soto V-8 engine has been increased in horsepower from the former 160 hp. to 170 hp., primarily by boosting compression ratio from the former 7.1 to 1 to 7.5 to 1. This has had the effect of raising torque at medium road speeds.

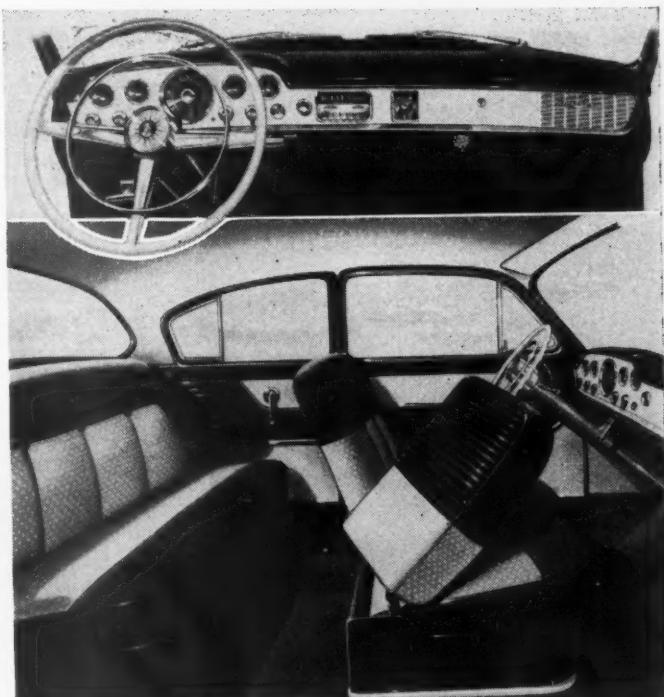
Styling changes, both inside and out, are offered on the new models. Refinements in trim, including the "floating" grille, "hooded" head lamps, contoured bumpers, and new fender, sill and belt moldings are the major exterior changes. Inside, new styling, fabrics and colors are being used. Also, the instrument panel has been redesigned for better visibility. The radio speaker has been moved to the extreme right and the glove compartment has been shifted more toward the center.

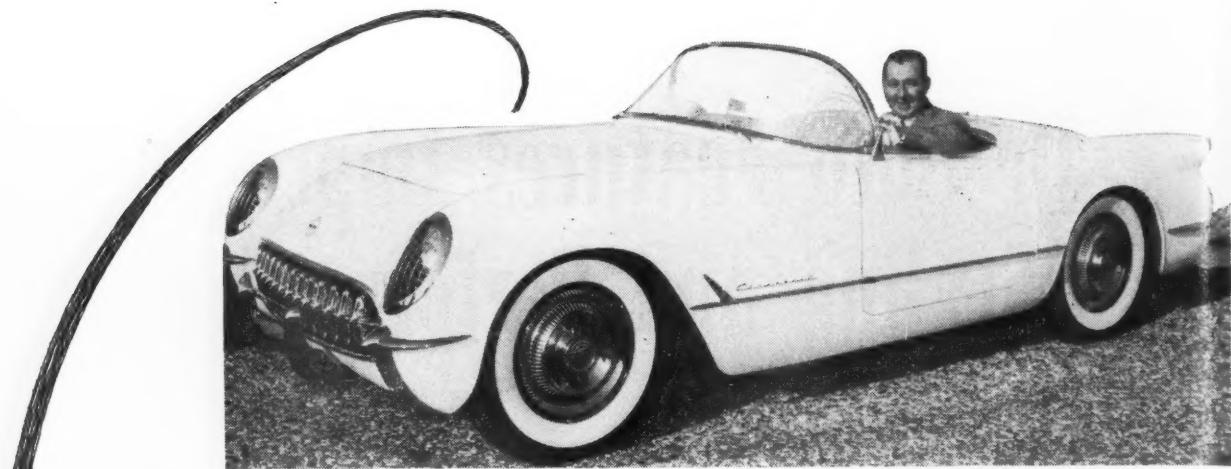
PowerFlite, the new fully-automatic transmission featured on the 1954 De Soto, consists of a torque converter and two-speed planetary transmission. Smoothness of operation is said to be achieved by the "cushioning" effect of the oil in the torque converter and the fact that there is only one automatic shift from starting gear to direct drive.

Neutral and Drive are selected by
(Continued on page 102)



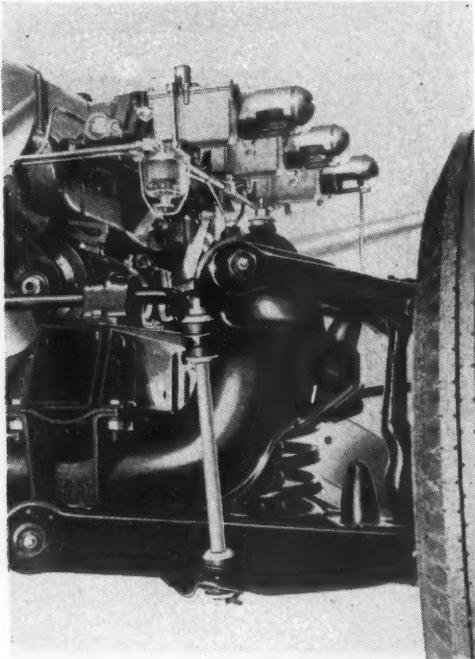
Above. This view of the Club Coupe shows the new "floating" grille design. Exterior trim appointments have been changed. Also, a number of styling improvements have been made in the interior. Notice (below) the new instrument panel and bolstered upholstery.





Corvette — You Bet!

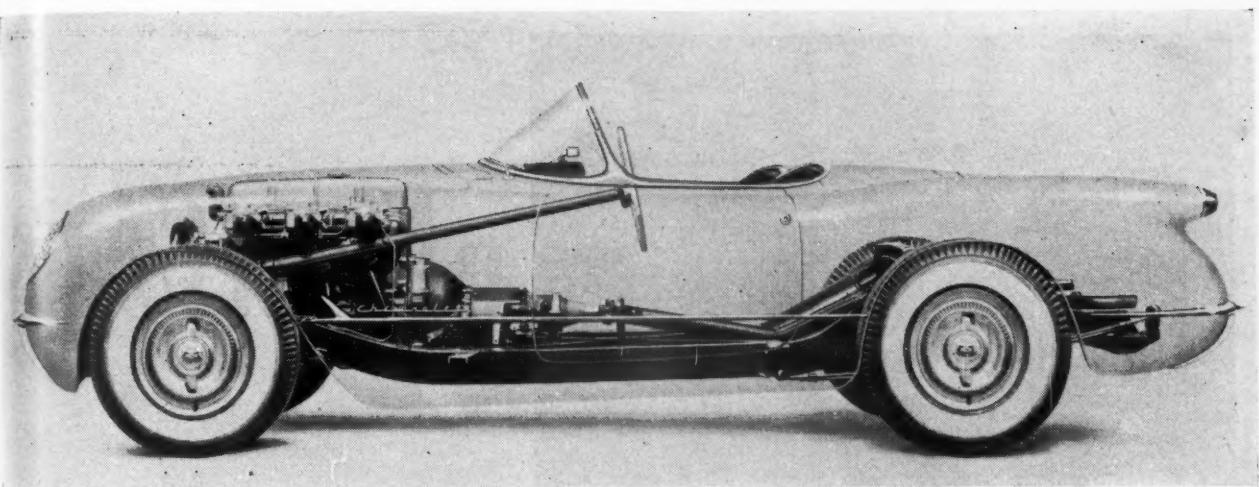
Dual exhausts and triple carburetors, shown below, assure maximum "breathing". The Corvette six-cylinder engine develops 150 hp. Carburetors are mounted horizontally at the top of the engine to make possible a low hood line.



IT'S difficult to write about the Corvette. It's difficult because one is tempted to reach for Hollywood's dictionary of glamour words. The fact is that Chevrolet has come up with a sports car in the American tradition. It is not a racing car in the accepted sense that a European sports car is a race car. Its speed is "upward of 100 mph" to quote Ed Cole, Chevrolet's chief engineer.

Chevrolet, the largest single mass producer of cars and trucks, revealed its "mass production" facilities of the reinforced plastic fiber glass bodied car last month—a production line where six cars are assembled. From June to September only thirty-eight Corvettes were turned out. They expect to build 250 this year against a backlog of orders totaling 25,000.

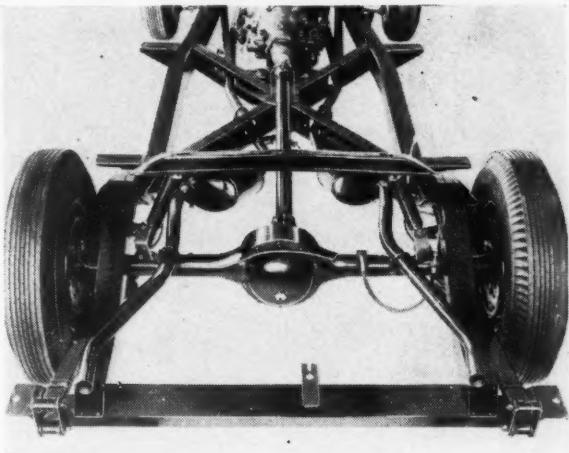
The white and red sport job is being built at Flint in the shadows of other Chevrolet manufacturing operations, where 250 cars and trucks are built every half hour. Corvette production will be stepped up



Compatibility of chassis and body is pronounced in this phantom view of the Corvette. Engineers introduced several chassis novelties such as side-mounted carburetors and an auxiliary water tank on the top of the engine.

Several distinctive features may be seen in this rear view. Broad leaf springs are mounted outside the frame, shock absorbers are mounted to the frame cross members. Note also the X-type frame cross member and the Hotchkiss rear drive.

The Editor of Motor Age had an opportunity to test drive the Corvette, Chevrolet's plastic-bodied sports car at the GM Proving Grounds. Here are the details . . . by Frank Tighe, Editor.



when operations are moved to St. Louis later on.

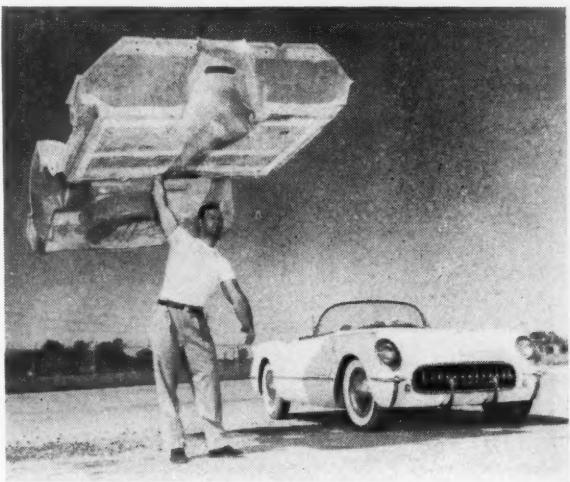
At the General Motors Proving Grounds we had our first opportunity to drive the low-slung two-seater. The Corvette proved to possess ready throttle response. No sway or roll-over was perceptible in cornering throughout the speed ranges.

The steering wheel is almost vertical and this positioning combined with form-fitting bucket seats and ample power in hand, gave the driver a feeling of security and firm control. The slope of the hood and the curved windshield, from which corner-posts have been eliminated, give excellent vision. On the dash, a tachometer registers revolutions of the engine. There are knobs for hood latches and an air scoop.

Chevrolet points out that tests on the Corvette body show: Panels permit lighter weight without sacrifice in overall body strength. Re-

(Continued on page 138)

Norbert Shemansky holds overhead the underbody which is the floor of the Corvette body assembly. It is made of fiber glass mats impregnated with resin and weighs only 75 pounds.





The 6 cylinder, 170 hp Talbot, made in France, has a top speed in excess of 105 miles per hour.

Unusual cars were a common sight at the 40th annual Automobile Show held recently in Paris

Made in Morocco, the Reac has a plastic body weighing 79 pounds without its detachable cockpit. The car has won a number of races.



New Cars

EIGHT countries and one hundred and five car factories were represented in the recent "40th Salon d'Automobile et du Cycle" at the Grand Palais in Paris. Aside from the more unusual cars shown here, there was a new model of the Ford Anglia from England, which is a smaller version of the Ford Consul; the tiny French Rovin convertible, designed to sell for about \$1,033; and the new British Standard Eight, a four-cylinder job selling for under \$1,000 in England.

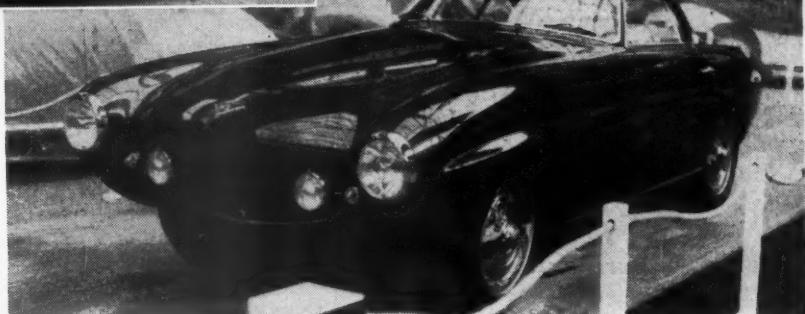
An interesting car unveiled at the show is the Symetric-Paris, which is powered by four electric motors, one on each wheel. The car has a four-cylinder, 45 hp gasoline engine which drives the generator to supply current to the motors. Designed by two French brothers, Maurice and Casi Loubiere, the car is not for sale to the public. The French Ministry of National Defense is now putting it through exhaustive tests which may result in its being adopted for use as the French version of the jeep.

Some new body materials made their appearances at the show, too. The Reac, a French built car shown at the left, has a plastic body weighing only 79 pounds without the cockpit. On the opposite page at the top is the French Salmson, body of which is made of a light-weight alloy metal.

Sparkle In Gay Pareé



The French Salmson, shown at the left, has a special light-weight alloy body. Note the unusual frontal appearance.



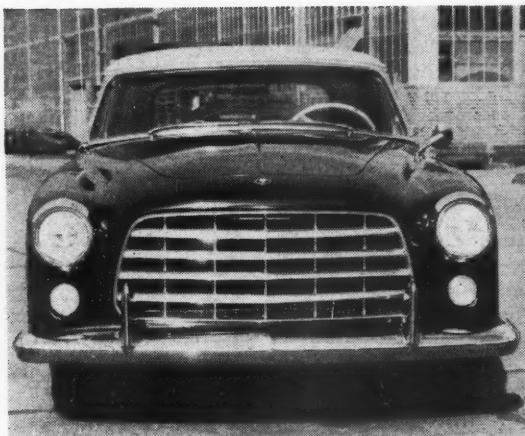
Top speed of the Italian Fiat, at the right, is 132 mph. It has a 110 hp V-8 engine.



Shown at the left is the Italian Nardi sports car. This sleek model is said to do over 96 mph.



Great Britain's famous Aston Martin, a 6 cylinder sports job, is claimed to do over 108 mph with its 157 cu. in. engine.



Designer Sterling Edwards has come up with a custom convertible sports car that stands 55 in. high with the top raised. Mounted on a shortened Ford

chassis and powered by a 205 hp Lincoln engine it has a power-weight ratio of under 14 lb. per hp. Standard components assure availability of parts.

Edwards Sports Car Unveiled On The Coast

Here's a California manufacturer's answer for fans who want sports car characteristics with domestic car parts and service. Its standard components are blended into a real sports car

and powered by a Lincoln 205 hp engine, with Hydra-Matic transmission. These standard components are designed to provide dependable performance and insure availability of parts and service facilities in virtually any location in the United States.

A molded Fiberglas body is reported to embrace comfort features and luggage space not usually associated with sports cars. Pleated leather upholstery, tan convertible top and glass windows which recess into the doors, insure comfort under all weather conditions. Performance data has not yet been released but should be phenomenal in view of a power-weight ratio of under 14 lb per horsepower (13.6) for the Edwards car.

Edwards is scheduling limited production at his South San Francisco plant. Delivered price is \$4,995 FOB South San Francisco. Specifications are as follows: wheelbase—107 inches; tread—56 inches, front and rear; overall length—179 inches; height (top raised)—55 inches; weight—2800 pounds; engine—Lincoln 205 hp; transmission—Hydra-Matic; and body—custom designed molded Fiberglas.

After years of experimentation, both as a designer and driver of racing cars, Sterling Edwards, South San Francisco, California manufacturer and sportsman, has produced the Edwards sports car. Practicality, from the parts and service standpoint, is the basis of the car's design.

The low, sleek, convertible body is mounted on a standard Ford chassis (shortened seven inches)

Pop Cools a "Hot" Car



Pop needed no geiger counter to find this "Chevie's" trouble after checking on factory service information

DID Pop O'Neill ever tell you about the time he cured Jan Jinger's pains in the legs and the lobe in his Chevrolet at the same time? He probably didn't at that, because Pop doesn't have a license to practice medicine in these parts, and then Jan himself would like to forget that

Affecting a limp as he hobbled out of his car, the building superintendent at the Research Center was convinced that both he and his car had become radio-active.

experience. Pop says it was simply a matter of employing the power of suggestion (for Jan) and the power of proper diagnosis (to the Chevrolet), but Jan won't talk about it at all.

Jan Jinger is the old guy you see driving toward the east gate of the Research Center every morning about five o'clock. He's building superintendent. Been there for years. One morning last summer he drove his 1951 Chevrolet into the garage with engine trouble. The surge between 25 to 30 mph on "float" was hot, unlike the Devil's own dance.

"Guess you can hear for yourself what's wrong with this car," he told Pop as he climbed out gingerly and

paced around to the hood, head cocked to one side like a Beagle hound with a tangled up right ear.

Pop walked over to the car. "Whatsa' trouble, Jan?"

Jan limped back to the driver's seat and revved the engine up to about 2000 rpm. "Listen to that, Pop. She goes bb . . . bbbup

bb . . . bbbup . . . bb . . . bbbup, like that. And it won't come out of her, Pop. I've had this car to two garages."

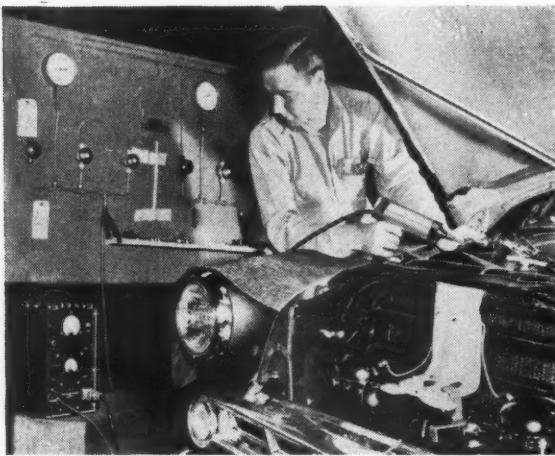
Pop hesitated only a moment. "You've got some engine surge. Nothing serious."

(Continued on page 86)



Pop O'Neill

Air Conditioning Presents Its Problems



Whether the job be replacing a compressor, checking for Freon leaks (as shown here), or other such services, mechanics will have to acquaint themselves with new techniques in servicing automotive air conditioning.

Regulations governing personnel who service automotive air conditioning are subjects for debate. Effects of decisions may be powerful

by Joseph Geschelin, Engineering Editor

SUPPOSE it were found that dealers and service stations could be compelled to hire a licensed refrigeration contractor to supervise all manner of service, including engine maintenance and tune-up on cars equipped with air conditioning systems. And suppose further that even motor car manufacturers might have to do the same thing. It could happen!

That was the situation facing the Automobile Manufacturers' Association (AMA) early this

year. Air conditioning caught on in a big way from the standpoint of public acceptance when leading companies in the industry made factory installations available on 1953 cars.

Although the present high cost of an installation, ranging upwards of \$600 in some instances, will naturally limit the number of cars that will be equipped, it is anticipated that by 1954 even some of the lowest priced cars will offer it.

In any event, air conditioning became big business almost overnight. And from the standpoint of the industry, as represented by AMA, it became a problem of national significance since it involves questions of public safety.

AMA proceeded to make a complete survey of the situation, convinced that public safety would require regulatory measures on a national and state level. Study of existing regulations showed there were no state statutes governing installation or use of air conditioning in motor cars, with the possible exception of California.

On the other hand, at least forty cities were found to have ordinances regulating installation and servicing of air conditioning equipment. Although these ordinances were written before car air conditioning was an accepted fact, they are so broadly worded as to have potential power of being applied to motor cars as well.

As a matter of fact, Detroit is one of the cities having an ordinance of this character and it was ruled immediately by the Corporation Counsel as being applicable to motor vehicles as a matter of strict legal interpretation.

Fortunately, Detroit is the center of motor car activity and the Mayor, the Common Council, and City Engineer were both sympathetic and understanding of the problem. AMA held meetings with City officials and had no difficulty in convincing them that car air conditioning should be exempted from the Code for many good reasons to be developed later.

Although Codes and actions on matters of public interest differ in different communities, dealers and service establishments all over the country must be prepared to meet the situation as it develops and take immediate steps in their

(Continued on page 108)

Located in a farm area, this dealer reaps good publicity and helps his community to be more prosperous by supporting 4-H Club activities



Larry Boody, Center, Farmington, Minn., Chevrolet dealer, eyes one of the registered sows which produces gilts for distribution among local 4-H members.

Rural Dealer Sponsors 4-H Club Activities

Boody, at the left, with Dick Brand, of the Empire Rockets 4-H Club. This display was set up at the annual livestock fair at Farmington.

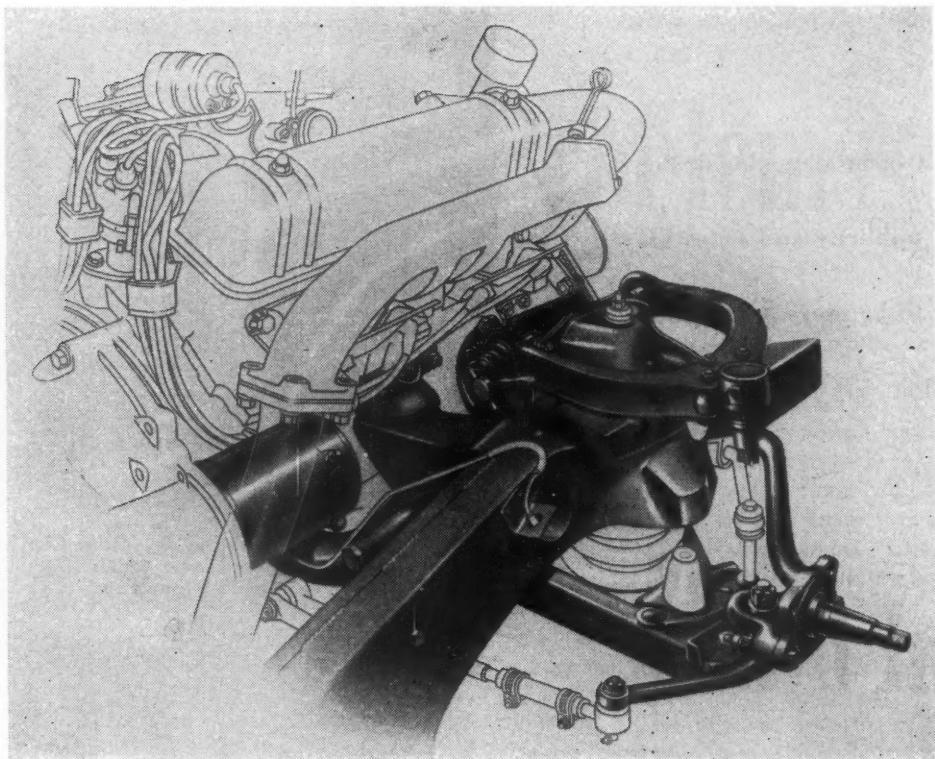


SCORES of purebred sows are shelling out large, fast-gaining litters of pigs in Dakota county, Minn., because an auto dealer wanted to help 4-H club members do a better job of farming. And, in doing so, he did an outstanding job of public relations at the grass-roots level.

It started several years ago when Larry Boody, who operates the Quality Chevrolet Company at Farmington, Minn., went into a huddle with Clarence Quie, county agricultural agent. Among Quie's many duties is that of promoting the 4-H movement throughout the county.

"Here's a plan to get some better breeding into swine herds in Dakota county," Boody told Quie. "What's your opinion of it?"

Quie gave Boody's proposition careful consideration. Briefly, it called for the auto dealer to set up a fund of nearly \$1,000 to purchase purebred gilts. Outstanding 4-H members in each of the numerous clubs in Dakota county would have the privilege of taking home an outstanding gilt, taking care of her pregnancy, acting as a midwife when the little pigs arrived, and then keeping the surplus pigs after selling enough of the mature pigs to pay for the original gilt. *(Continued on page 78)*



Right front view of the Lincoln ball joint suspension showing how the support pivots in the upper and lower control arm.

Servicing The Ball Joint

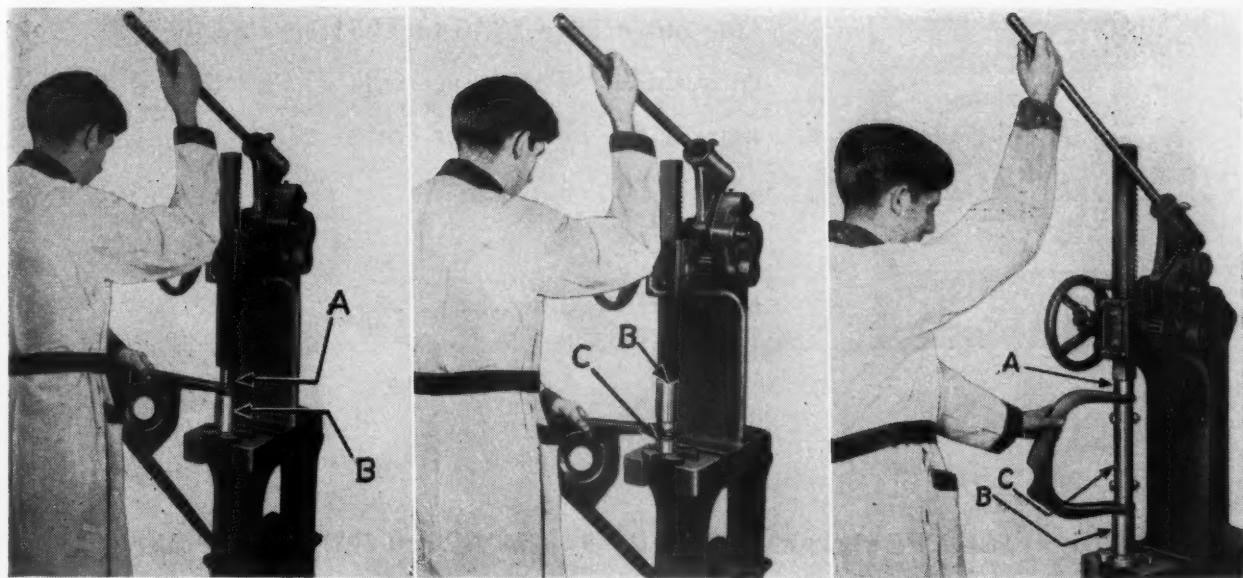
This suspension system, now used on 1953 Lincoln cars, will be found on

THE ball-joint type of front suspension differs from others in that the wheel spindle is attached directly to the suspension arms by means of ball joints located at the outer ends of both arms. On previous types, the wheel spindle is attached to a spindle support by means of a king pin, and the support in turn is bolted to the suspension arms. Rubber bushing assemblies are pressed into the holes in the

inner ends of both arms. A cup type washer is used to lock each bushing shell, so that all pivoting at these joints occurs by deflection of the rubber.

Caster and camber adjustments are made at the upper suspension arm inner shaft, and are accomplished by installing or removing shims from between the inner shaft and frame.

Removing shock absorbers. Remove "palmut,"

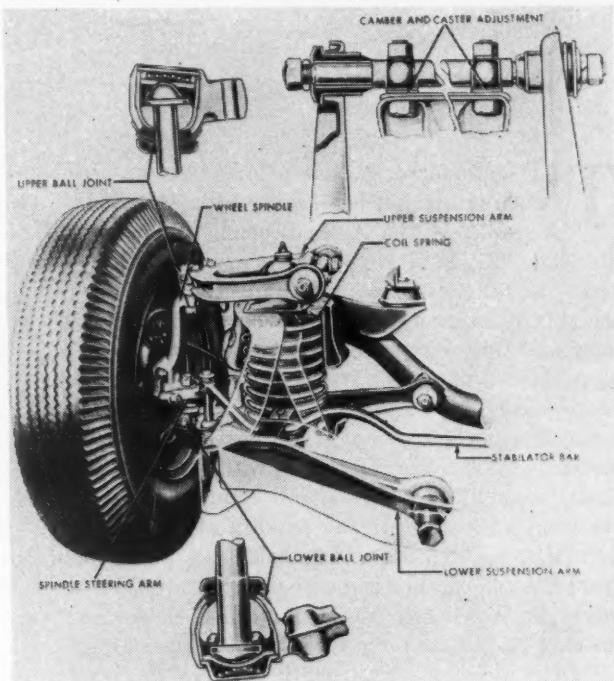


Above. Pressing the lower suspension arm inner bushing out with special fixtures.

Above center. Installing the lower suspension arm inner bushing with special fixtures.

Above right. Upper suspension bushing being installed with the use of special fixtures.

Exploded view showing all the working parts and the location of the shims controlling caster and camber adjustments.



Suspension

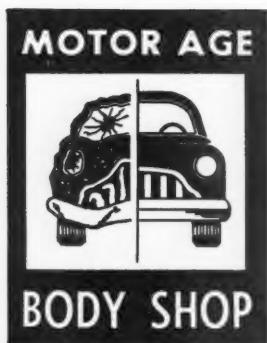
other popular cars in the future

nut, washer, rubber bushing and seat washer which attach the upper end of the shock to the frame. Remove the two cap screws that retain the shock mounting plate to the lower suspension arm, and lower the shock unit.

Removing and installing the front coil spring and lower suspension arm. Raise the front of the car and place a stand under each frame side rail to the rear of the lower suspension arm.

Remove the wheel with the hub and drum assembly. Next, take out the shock absorber, then remove the bolt, washers, insulators and spacer that secure the stabilizer to the lower arm. Remove the cotter pin from the slotted nut that attaches the lower ball joint stud to the lower spindle boss, and unscrew the nut from one to two turns. Since the coil spring force is trying

(Continued on page 96)



One out of five 1946 to 1951 cars needs refinishing. This represents a lucrative market for body shops which go after it

by Arthur H. Nellen, Jr.
Managing Editor

A Quarter Billion Dollars' Worth of Repaint Jobs on the Loose

THE one quarter billion dollar automotive refinishing market has hardly been scratched! A recent MOTOR AGE editorial investigation disclosed that nineteen out of every one hundred 1946 to 1951 cars need a new paint job. (A similar survey is being conducted on the subject of body and fender repairs, the results of which will be published in a later issue of MOTOR AGE.) An interesting fact to parallel these figures is that a major manufacturer of waxes and polishes completed a survey last spring in which they found that nineteen out of every one hundred car owners completely neglect the finishes of their cars. Although no definite conclusions can be drawn from the coincidence in percentages, there is certainly an indication of the relationship between the care and the life expectancy of the car's finish.

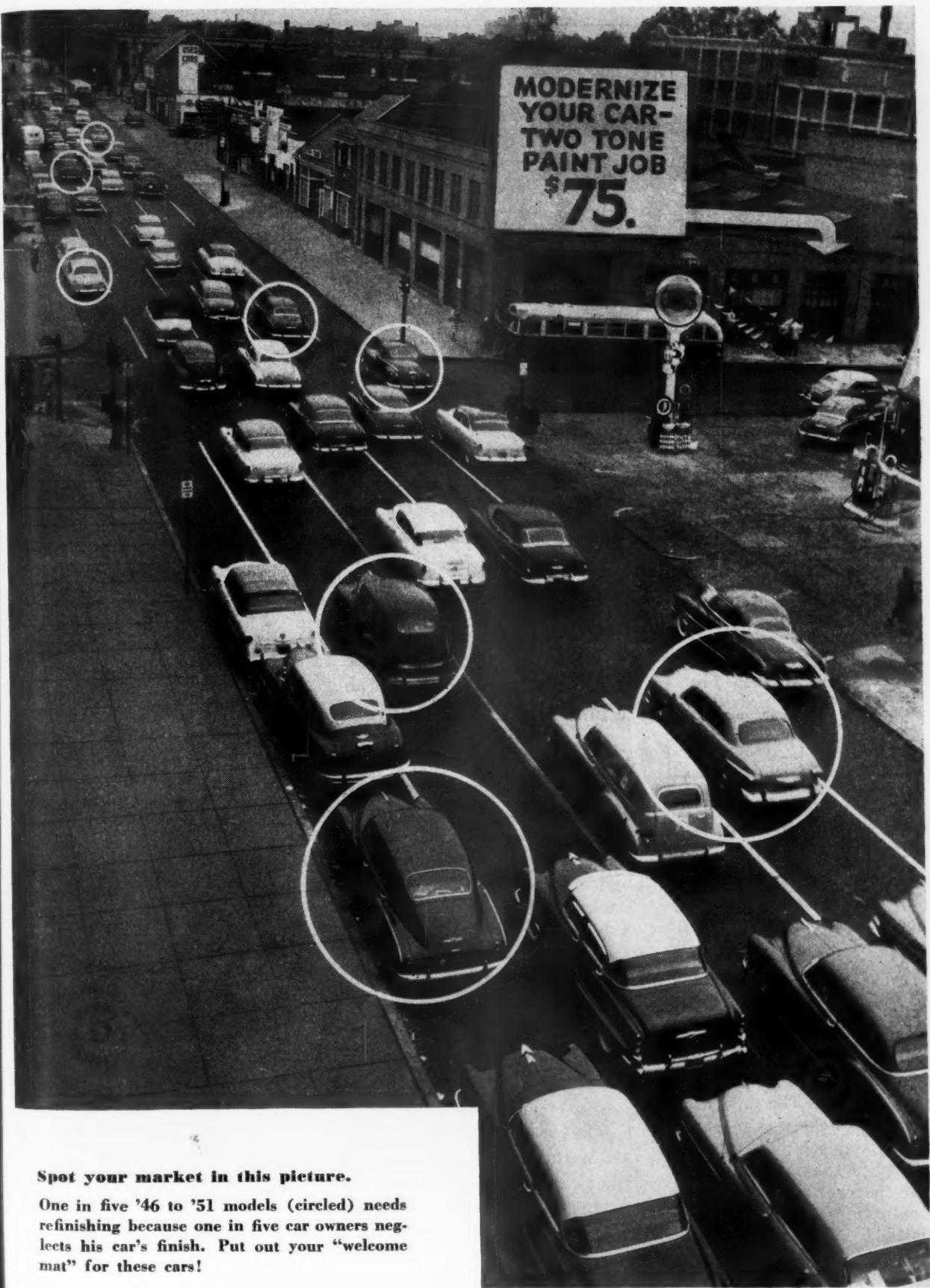
Of the 564 cars examined in the MOTOR AGE's editorial investigation, there were many, over and above the 107 which needed a complete refinishing, needing polish and protection.

Seven Selling Points for Refinishing

This is a service on which the customer is already pre-sold to some extent, due to the recent trend towards two-toning and the variety of attractive new colors offered by paint manufacturers. What's more, there are seven "built-in"

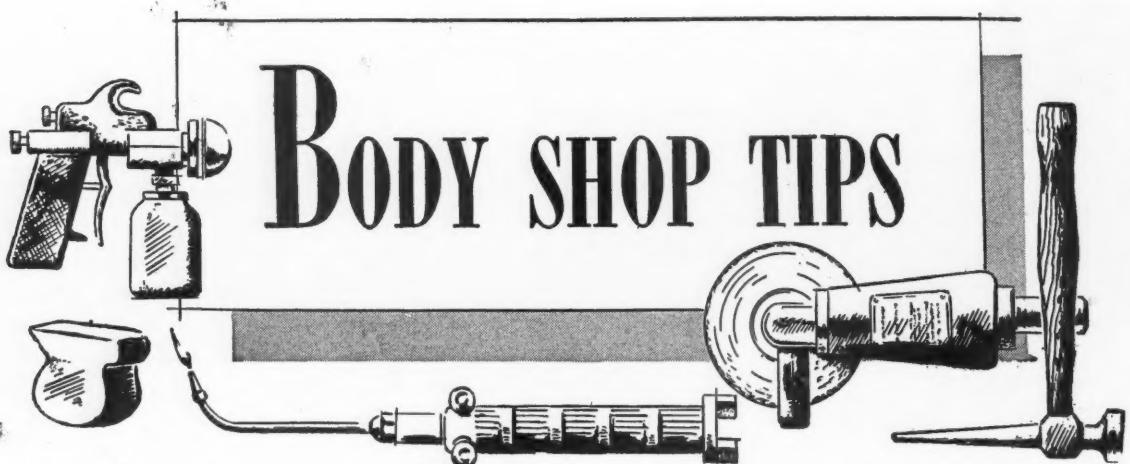
sales points for refinishing, and the body shop operator should exploit them whenever possible. These are: (1) the customer whose car needs repainting is usually thinking about trading it in when, in many cases, the car is mechanically sound. An inexpensive paint job will "perk up" his interest in the car and make it more desirable to keep for another year or two. Each additional year that the car is driven decreases its rate of depreciation. (2) When he does trade it in, the car will be worth more than it was in its previously shabby condition. (3) The paint job will bolster his pride of ownership. A good looking, "clean" 1949 car, for instance, is more attractive than a 1952 model which is dull, dented and dirty. (4) Actually many older models can be modernized in appearance with a two-tone effect, especially when some of the eye catching new colors are used. The metallic paints, which the paint manufacturers have perfected in recent years, do much to enhance a car's appearance, especially on the older models. (5) When a car's finish has deteriorated, it cannot provide proper protection of the metal, which is its primary purpose. Once rust and pitting set in, of course, the need for refinishing becomes even more pronounced. (6) Many car owners think that a refinishing job involves

(Continued on page 98)



Spot your market in this picture.

One in five '46 to '51 models (circled) needs refinishing because one in five car owners neglects his car's finish. Put out your "welcome mat" for these cars!



BODY SHOP TIPS
are worth

\$7.50

If you've developed an idea that has helped you to do body and fender work or painting better or faster, it may be worth money. Jot down the idea and, if necessary, make a rough sketch. Sometimes a snapshot will help. Just make the description of your BODY SHOP TIP clear, and if it is used, you'll receive a check for \$7.50.

Masking Tape Applied to Wax Base Prevents Paint Pulling

We learned a trick in applying masking tape when doing a two-tone job. Sometimes, on a freshly painted surface, paint may be pulled off when the tape is removed.

To eliminate this, we wipe a little wax along the surface to which the paint will be applied. We then proceed to tape the car in the usual manner. The tape sticks well enough to the wax to permit a good masking job, but is easy to remove when the job is finished.

We've never had any trouble with paint jobs since we started this method. *Jim Newcomer, Ellis Automotive Service, 1045 East Princess Street, York, Pa.*

Notch End of Glass Crack To Stop Break Spreading

A small crack in the door or windshield glass can be stopped in the following way: determine on which side of the glass the crack is located, then make a small notch at the end of the crack with a glass cutter. *DeWayne Smith, Smitty's Body Shop, West Liberty, Ia.*

Screwdriver Releases Catch When Trunk Lid Pin Breaks

This is how we open the trunk lid on 1951 Mercurys when the pin breaks. Instead of removing the rear seat to unlock the trunk lid, I have found that you can use a small screwdriver and drive it in beside the trigger and knock the catch from lock position. This saves a lot of time and trouble. *T. E. Lynn, Kavanaugh Motors, Inc., 312 West Main Street, El Dorado, Arkansas.*

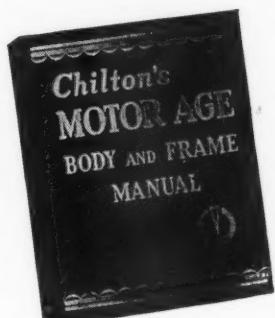
Soap Stone on Sandpaper Prevents Paint From Balling

I have found when feathering out lacquers with dry sandpaper, with a vibration sander or by hand, the paint knots up into little balls. The paper is not dull but is filled with paint. I now take soap stone or chalk and rub it on the sandpaper first; it cuts down better and does

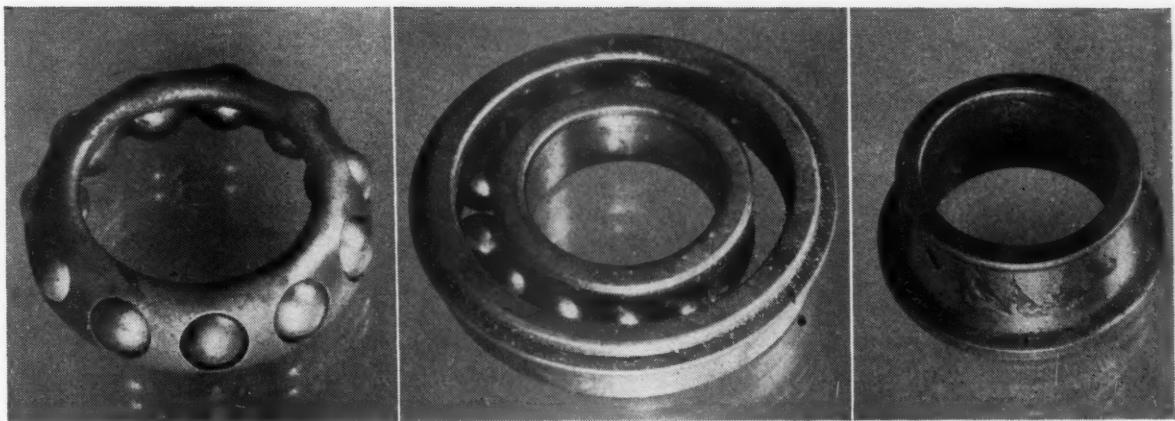
not fill up with paint nearly as fast. The same thing will help when filing soft metal with a fine body file. *Edward J. Cypher, Cabot, R.D. #1, Pennsylvania.*

How to Thicken Paint For Touch-Up Work

Sometimes there is touching up to be done with a brush after spraying a spot job with lacquer; usually it is because the matched color is too thin. I take an old door panel and stand it on end and, holding the gun about three feet away, spray it on the top of the panel in one spot. I place a jar cover under the bottom of the panel where the paint will run into it. This process thickens the paint enough to do the touch up job easily. *James Blaser, Chas. Siegel & Sons Garage, 3527 E. Squire Ave., Cudahy, Wis.*



Other valuable information of the type presented each month in The BODY SHOP is available in Chilton's Motor Age Body and Frame Manual.



Above. A front wheel bearing scored due to poor lubrication. Shown at the center is a transmission

bearing on which the ball separator tore loose. Right. A scored differential pinion bearing cone.

Anti-Friction Bearing Care

Knowing how to prolong bearing life and recognizing when bearings are unfit for use are important responsibilities with which mechanics are faced

THREE are approximately 20 anti-friction bearings in operation on every car. Each bearing, whether tapered, roller or ball type, performs an extremely important function in keeping cars rolling smoothly. For this reason many mechanics hesitate when it comes to making the decision as to whether or not a bearing is unfit for further service.

When checking a bearing it is wise to consider where it is being used and to know what job it performs.

In the case of differential pinion bearings, end play is not permitted. A pinion shaft must be held rigidly to its adjustment with relation to the ring gear. Therefore if any end play exists it will let the pinion shaft move back and forth and will cause noisy gears.

Shielded bearings are used mostly in transmissions, and the purpose is to prevent loss of lubricant. This type bearing should be installed with the shield to the inside. Transmission bearings

(Continued on page 144)

**by Ed Shea, Assistant Editor
Chilton's Motor Age Flat Rate
and Service Manual**

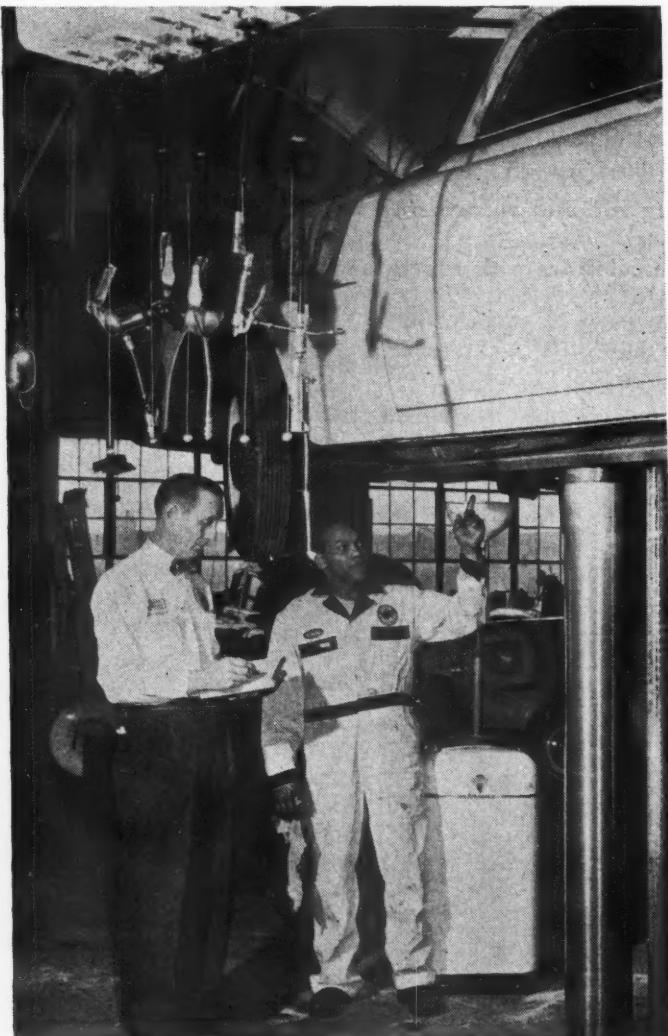
**This rear axle bearing cup has become scored due to
improper adjustment or lack of lubrication.**



Lubrication Pays in 19 Ways

The man on the lube rack should check the car carefully and report to the service manager who can tell the owner what additional work is necessary

by Jack Montgomery,
Technical Editor



IN a recent survey among service department managers it was disclosed that 19 major merchandising opportunities presented themselves during the course of a lubrication job.

Today's motorist is being made more aware of the lubrication needs of his car through programs emphasizing specified intervals of lubrication for the safe, economical operation of his automobile.

It is at this point where the intelligent lube man follows a predetermined inspection check list that builds service and parts profits.

(1) Routine or courtesy checks include checking tire pressures, tightening spring U bolts, cleaning off fittings, checking radiator level, and so forth.

(2) With the car on the lift, examine the steering: check the king pins and tie rod ends for play. Examine the wear pattern of the front tires; if they are not wearing properly they should be rotated and the disclosure brought to the attention of the owner that the car might need front end alignment. (3) Check the shock absorbers for leaks and rubber bushings for wear.

(4) If front wheels are being packed, the brake lining should be checked for wear. (5) Examine rear wheel brake drums for evidence of seepage of lubricant. Remedy by replacing rear wheel



Customers appreciate the little services, such as tightening shock absorber mountings, when they bring their car in for lubrication. This is an important way to make lubrication pay.

With a car on the lift, whether the owner is there or not, there are numerous ways to do a service to both the shop and car owner

bearing seals or other worn parts. (6) Check universal joints for play and lubrication. The rear pinion seal and the transmission seal should be inspected.

(7) The brake master cylinder should be checked for leaks; this can be done by lifting up on the boot on the end of the cylinder. If fluid is present at that point the cylinder should be either overhauled or replaced. (8) Inspect the brake hoses for deterioration and kinks. (9) Look for frayed emergency brake cable. Test for "frozen" cable.

(10) Examine muffler and tail pipe for leaks. Kinks and dents cause back pressure on the motor. Also, make certain the brackets and clamps are tight and in good condition.

(11) Check motor mountings; these mountings sometimes become deteriorated and torn and should be replaced. (12) The front and rear springs should be inspected for sag and also for broken leaves. There's a possibility of selling a spring lubrication.

(13) Examine the crankcase for leaks. It may be at the rear main, or perhaps the front seal is bad, or the valve compartment might need new gaskets.

(14) Drain crankcase oil while it is still hot as this allows the greatest amount of old oil to drain. Inspect the drain plug gasket before replacing plug. To check level on conventional transmission, remove transmission fill plug. If necessary, add lubricant as specified to bring level to lower edge of fill plug hole.

(15) When working under the hood; check fan belt for fraying and tension. Inspect radiator hoses for cracks; check tightness of hose clamps. Check radiator cap and gasket for proper seal. In winter, check the anti-freeze.

(16) Inspect battery cables. If corroded and eaten away suggest new ones. Grease terminals to prevent corrosion. Check the battery. Low readings indicate battery weakness or trouble in the electrical system.

(17) The air cleaner should be removed, cleaned and re-oiled, as recommended by the manufacturer. (18) Sell the owner on the need of changing the oil filter periodically.

(19) Items such as faulty tail lights, head lamps, windshield wiper arms and blades should be brought to the attention of the owner for immediate replacement.



by Jack Montgomery, Technical Editor

- **Powerglide Loses Oil**
- **Eliminating Raw Gas Smell**
- **Buick V-8 Lacks Power**
- **Distributor Rotor Burns On Cadillac**
- **Dynaflow Chatters In Reverse**
- **Old Car Information**

'50 Powerglide Has Oil Loss; Uses Quart per 1000 Miles

I have a 1950 Powerglide Chevrolet, with 22,000 miles. There is a loss of oil in it; it requires about 1 quart of oil per 1000 miles. Should I install a new gasket or diaphragm?

*E. C. Rick
Washington 3, D. C.*

USUALLY, when a Powerglide transmission uses a lot of oil, it is due to one of the following conditions. 1). Internal leakage at the propeller shaft oil seal. To prove: check the differential lubricant level. If it is high, have the front oil seal replaced. 2). Modulator diaphragm leaking. To prove: put a glass bowled gasoline filter in the modulator vacuum line at the manifold. With the engine running, if the diaphragm is leaking, oil will appear in the filter bowl and the

diaphragm should be replaced. I would recommend having the unit replaced rather than adding oil, because the transmission oil will thin the rear axle lubricant and might cause early failure of the bearings or gears. If the modulator is leaking, it will make the engine form carbon.

Sealing Filler Neck Advised For Raw Gas Smell

We have been experiencing some trouble in correcting a raw gas smell on the 1953 Fords, both 6 and V-8. We would appreciate any help you could offer.

*Thomas E. Burgess,
Van Drisse Motors,
Green Bay, Wis.*

TO overcome this condition, I would suggest that you carefully seal the filler neck with compound where it comes through the

READERS

TROUBLE

panel. Also, check the gas lines and fittings for evidence of leaks and for a loose fuel tank gage.

'53 Buick Acts Sluggish, Lacks Pick-Up at 50 mph

I would like some information on a 1953 Buick 76R Roadmaster. The car is very sluggish, with no pick-up or power at 50 mph. What change in carburetor jet size should be made for best performance?

*Steven Chanti, Jr.
Chanti Motor Repair
Roebling, N. J.*

IF this car gets up to 50 mph without getting sluggish, changing the carburetor jets won't help. Rather than changing the jets, I would suggest checking the ignition timing. For best results, set the distributor until the engine has a slight ping under a heavy load.

Cadillac Distributor Rotor Burns, Engine Runs Rough

I have several problems on a 1949 Cadillac. First, the rotor in the distributor seems to burn, chip, crack, and make the engine run rough. Six new rotors have been installed. The engine runs good for only 50 miles, then it runs rough again. The compression tests are good and the hydraulic lifters are not dirty.

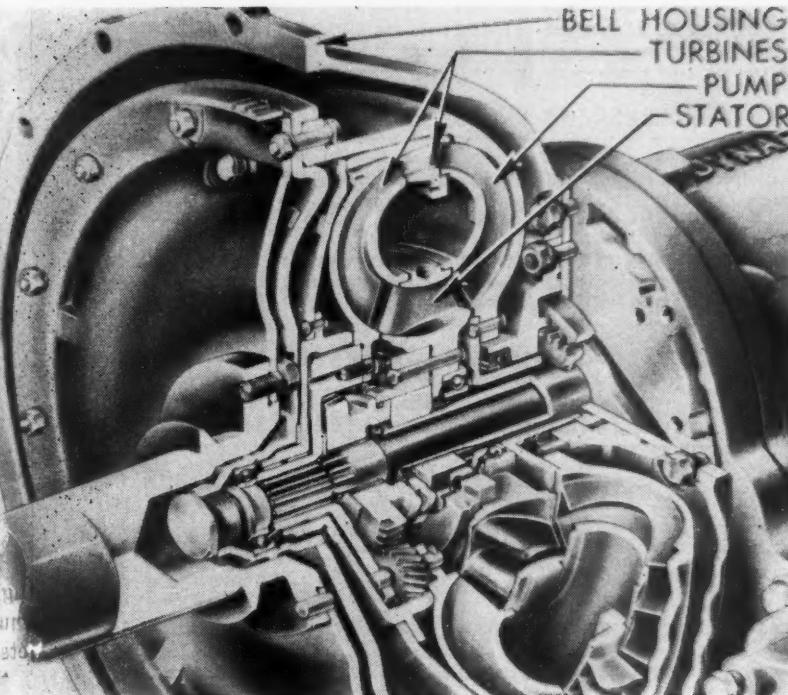
*Walter Noch
Noch's Auto Repair
Glastonbury, Conn.*

I would suggest installing a new distributor, along with the rotor. There is also the possibility of dampness causing your trouble. To

FOR ADDITIONAL SERVICE INFORMATION REFER TO CHILTON'S

S CLEARING HOUSE

SHOOTING PROBLEMS



Cutaway View of the Dynaflow Unit

stop the points from burning, check and tighten all the electrical connections and have the voltage regulator checked. The voltage setting may be too high.

Dynaflow on Buick Chatters And Bucks When in Reverse

Having just read the article in MOTOR AGE on Dynaflow, I was wondering if you could give me some information on the new Twin-Turbine. What are the causes and remedies for the bucking or chattering when the car is backed up?

E. S. LeBlanc,
Thibedeau & LeBlanc Auto
Body Co.
Lynn, Mass.

MOST of these complaints are due to a rough idling engine or the idle speed being set too high. Tune the engine and set the idle speed at 450 rpm. If the car has less than 5,000 miles on it, sometimes it will chatter until the lining wears a little.

Overhaul Data On A 1930 LaSalle

I have recently acquired a 1930 LaSalle which gives clear evidence of bearing trouble. I intend doing the repairing myself but believe it would be bad judgment to replace only the rod bearings which I can do with little difficulty. The mains are something else again. I should

at least examine them.

Now it has been years since I looked into the vitals of V-8's of this vintage. I would appreciate receiving from you all the information you can find, or tell me where I can find it.

While the rest of the car and motor are sound I would also like to have what information you may have relative to that wretched manifold heat system (exhaust gases piped through an aluminum pot to warm separately piped gasoline vapor on its way to the cylinders. Had a fire in my 1933 Cadillac because the pot perforated. Replacement pot went sour after only a few thousand miles.

J. R. Feger
Edwin A. Scott Pub. Co.
Tarrytown, New York

THREE is very little information on this job but I will send along some tune-up data that I have been able to dig up. Incidentally, the best thing to do to find out if your mains are loose, is to put an oil pressure test on the engine. This is done by attaching the oil tank to your main oil line and then put pressure on it. Turn the crankshaft and watch the drops from each bearing. If oil drops are excessive, at any one time, they then should be replaced. Also when

(Continued on page 134)



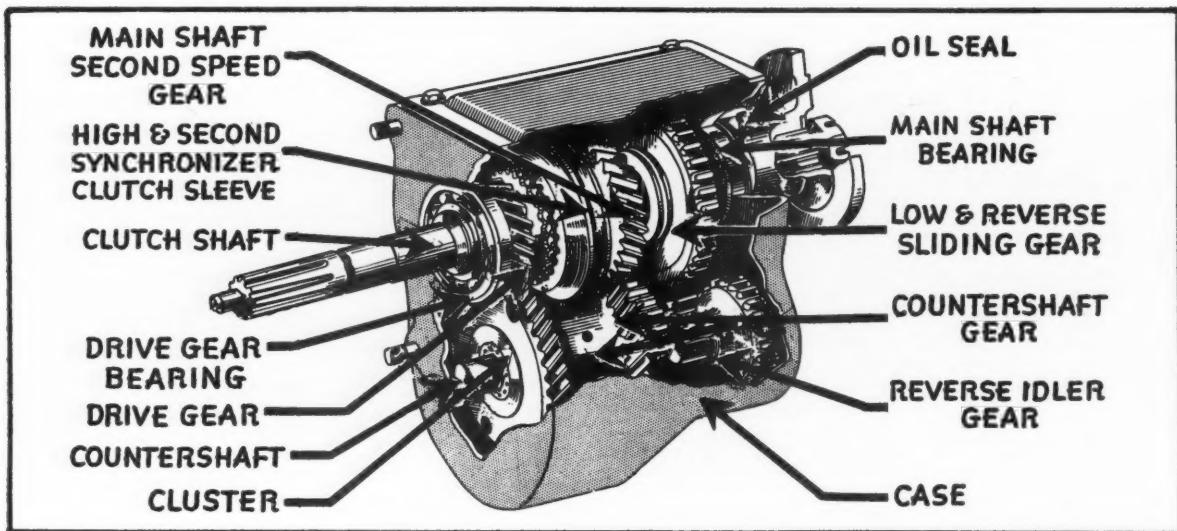
Current Passenger Car Price, Weight and Body Table

Following are prices at factory for cars with standard equipment as of October 29, 1953
State or local taxes, transportation and finance charges and optional equipment are extra.

BODY MAKE AND MODEL	List Price at Factory without Federal Taxes				BODY MAKE AND MODEL				List Price at Factory without Federal Taxes				BODY MAKE AND MODEL				List Price at Factory without Federal Taxes			
	Federal Taxes and Handling Charges	Delivered Price at Factory Including Federal Taxes	Shipping Weight		Federal Taxes and Handling Charges	Delivered Price at Factory Including Federal Taxes	Shipping Weight		Federal Taxes and Handling Charges	Delivered Price at Factory Including Federal Taxes	Shipping Weight		Federal Taxes and Handling Charges	Delivered Price at Factory Including Federal Taxes	Shipping Weight		Federal Taxes and Handling Charges	Delivered Price at Factory Including Federal Taxes	Shipping Weight	
BUICK																				
Special 40	2010	189	2199	3675	DE SOTO [†]	Powermaster 6			KAISER	Manhattan			PACKARD (Con tinued)							
Sedan, Del., 2d	2064	191	2255	3710	Club Coupe	2166	168	2334	3480	Club Sedan	2395	202	2597	3235	Cpe. Conv.	3200	286	3486	4125	
Sedan, DeL., 4d	2102	193	2295	3705	Sedan, 4d, 6p	2188	170	2356	3535	Sedan, 4d	2444	206	2650	3265	Sed. Patric.	3438	302	3740	4190	
Riviera Cpe.	2343	210	2553	3815	Sportsman	2417	187	2604	3585	Traveler, 4d	2542	213	2755	3265	Cpe. Carib.	4804	406	5210	4265	
Conv. Cpe.					Stat. Wagon	2857	221	3078	3845					Sed. Derham.	6037	494	6531	4335		
					Sedan, 4d, 8p	3018	233	3251	4080	DeLuxe	2267	192	2459	3150	Sed. Exec.	6381	519	6900	4650	
					Club Coupe	2433	188	2621	3655	Club Sedan	2317	196	2513	3200	Lim. Corp.	6587	533	7100	4720	
					Fire dome 8	2453	190	2643	3720	Traveler	2315	204	2619	3200						
					Sedan, 4d, 6p	2685	207	2892	3740					PLYMOUTH [‡]						
					Sportsman	2891	223	3114	3990					Plaza	1480	118	1598	2889		
					Conv. Coupe	3111	240	3351	3995					Bus. Coupe	1582	125	1707	2943		
					Stat. Wagon	3176	253	3529	4270					Club Sedan	1617	128	1745	3004		
					Sedan, 8p									Suburban	1895	149	2044	3122		
														Savoy						
														Club Coupe	1682	133	1815	2985		
														Sedan, 4d	1689	134	1823	2982		
														Sedan, 6p	1717	136	1853	3036		
														Belvedere	1792	141	1933	3050		
														Sedan, 4d	1970	155	2125	3038		
														Suburban	2103	165	2288	3186		
														Conv. Coupe	2115	168	2281	3273		
CADILLAC																				
Series 62	3295	276	3571	4230	DODGE [†]	Midowbr. 8			MERCURY	Custom			PONTIAC							
Coupe	3384	282	3666	4225	Club Coupe	1816	142	1958	3120	Sedan, 2d	2004			Chieftain 6						
Sedan	3691	304	3995	4320	Sedan, 4d	1855	145	2000	3195	Sedan, 4d	2057			Sedan, 2d	1788	168	1956	3341		
Coupe De Ville	3830	314	4144	4500	Coronet 6	1995	156	2151	3390	Sedan, 4d	2117			Sedan, 4d	1843	172	2015	3391		
Conv. Coupe	7196	554	7750		Club Coupe	1933	151	2084	3165	Sport Coupe	3453			Del. Sed., 2d	1888	175	2060	3356		
					Sedan, 4d	1958	153	2111	3235	Convertible	3549			Del. Sed., 4d	1940	179	2119	3396		
					Sedan, 4d	2044	160	2204	3185					Del. Catalina	2112	192	2304	3421		
														Cust. Catalina	2174	196	2370	3421		
														Del. Conv. Cpe.	2242	202	2444	3571		
														St. Wg., 2 St. Pt.	2248	202	2450	3588		
														St. Wg., 3 St. Pt.	2299	206	2505	3666		
														St. Wg., 2 St. Gr.	2322	208	2530	3588		
														St. Wg., 3 St. Gr.	2373	212	2585	3666		
														Dix. St. Wg., Pt.	2378	212	2590	3626		
														Dix. St. Wg., Gr.	2452	218	2670	3626		
CHEVROLET																				
Special 1500	1395	129	1524	3140	FORD	Mainline 6														
Bus. Coupe	1479	134	1613	3180	Bus. Coupe	1400	122	1522	2977											
Sedan, 2d	1485	135	1620	3140	Tudor	1497	130	1627	3057											
Club Coupe	1530	140	1670	3215	Fordor	1542	133	1675	3105											
Sedan, 4d	1845	165	2010	3420	Ranch Wagon	1846	158	2004	3294											
Station Wagon					Custome 6	1582	137	1719	3067											
					Tudor	1591	137	1728	3046											
					Club Coupe	1628	140	1768	3115											
					Mainline 8	1471	128	1598	3058											
					Tudor	1567	135	1702	3126											
					Conv. Coupe	1613	138	1751	3171											
					Ranch Wagon	1917	163	2080	3406											
					Custome 8	1662	142	1804	3121											
					Club Coupe	1653	141	1794	3133											
					Tudor	1698	145	1843	3193											
					Country Sed.	2076	176	2252	3539											
					Crestime 8	2076	176	2252	3539											
					Victoria	1941	164	2105	3250											
					Sunliner	2043	172	2215	3334											
					Country Sq.	2203	185	2388	3609											
CHRYSLER[†]																				
Wind, Del. 6	2330	181	2511	3620	HENRY J	Corsair			OLDSMOBILE	De Luxe 88										
Club Coupe	2350	182	2532	3685	Sedan, 2d	1286	113	1399	2395	Sedan, 2d	2066	196	2262	3603	STUDEBAKER					
Sedan, 4d, 6p	2600	201	2801	3730	Del. Sed., 2d	1437	124	1561	2445	Sedan, 4d	2126	201	2327	3642	Champion					
Conv. Coupe	2800	216	3016		Hudson [†]	Jet			Super 88	2189	206	2395	3628	Custom						
Twn. & Cty.	3056	235	3291	4030	Sedan, 2d	1665	172	1837	2715	Sedan, 2d	2157	218	2695	3450	DeL. Sed.					
Sedan, 4d, 8p	3215	247	3462		Sedan, 4d	1685	173	1858	2875	Sedan, 4d	2477	218	2716	3480	Sedan, 4d	1855	150	1735	2690	
New Yorker 8	2940	227	3167	3920	Super Jet	1755	178	1933	2710	Super Jet	2615	238	2853	3905	DeL. Conv. Cpe.					
Club Coupe	2965	229	3194	3955	Club Sedan	1775	179	1954	2725	Club Sedan	2189	206	2395	3628	Delux	1755	162	1917	2715	
Sedan, 4d, 6p	3220	248	3468	3985	Jet-Liner	2552	214	2486	3525	Sedan, 4d	2552	210	2462	3673	Sedan, 4d	1785	164	1949	2745	
Newport	3705	284	3989	4260	Club Sedan	1860	186	2046	NA	Holiday	2448	225	2673	3661	Coupe, 5p	1790	165	1955	2700	
Twn. & Cty.	4025	308	4333		Sedan, 4d	187	2057	2760	NA	Conv. Coupe	2615	238	2853	3905	Convertible	1940	176	2116	2760	
Sedan, 4d, 8p														Commander						
														DeL. Deluxe						
														Sedan, 2d	1675	156	1831	2700		
														Sedan, 4d	1705	158	1863	2735		
N. Y. Del. 8	3130	241	3371	3995	Super Wasp	2203	210	2413	3490	Clipper Line	2334	210	2544	3700						
Club Coupe	3155	243	3398	4060	Club Sedan	2056	200	2256	3440	Club Sedan, 2d	2344	210	2544	3700						
Sedan, 4d, 6p	3410	262	3672	4075	Super Wasp	2203	210	2413	3490	Sedan, 4d, 6p	2384	214	2598	37						



A Basic



Cutaway of a conventional three speed transmission. Light arrows on diagrams on opposite page indicate the direction the shafts are turning.

This article on the fundamentals of the conventional transmission lists the main working parts and how they function

by Jack Montgomery, Technical Editor

THE transmission is the brain which determines the car's direction and pulling power. Here we will follow a standard three-speed transmission.

All gears are located on shafts within an oil tight housing, or transmission case. In most designs the main shaft of the transmission is supported at the front end by a pilot bearing located inside the main drive gear or clutch shaft. The rear end is connected through a universal joint to the propeller or drive shaft.

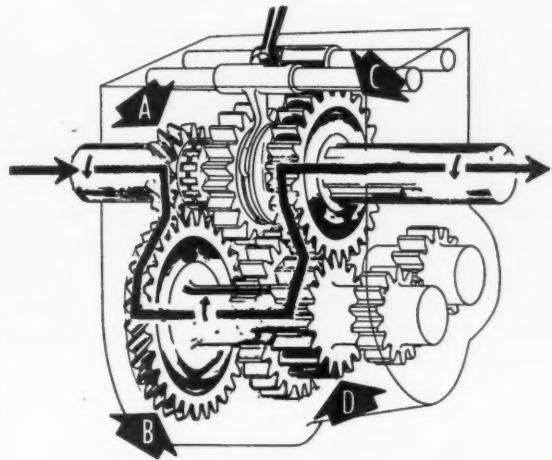
The counter shaft carries the cluster gears which are in constant mesh with the main drive gear on the input shaft; this in turn meshes with the sliding gears on the mainshaft to provide the desired gear ratios.

Another shaft carries the reverse idler gear that makes possible the reverse rotation of the mainshaft when the proper combination of gears is employed.

How the Transmission Produces the Various Speed and Power Combinations

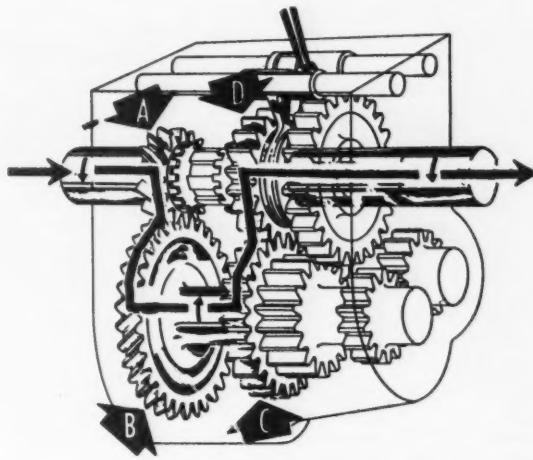
The main drive gear (A) and the countershaft gear (B) are always in constant mesh, which makes them both turn when the clutch shaft revolves. If no sliding gear is in mesh with the cluster gears the countershaft just rotates idly. *(Continued on page 118)*

Guide on Transmissions



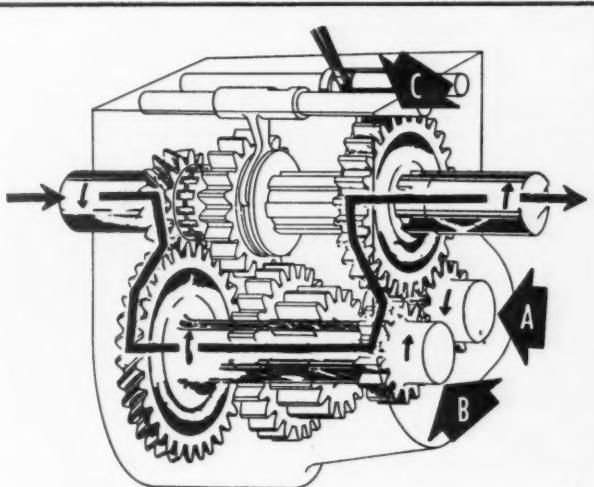
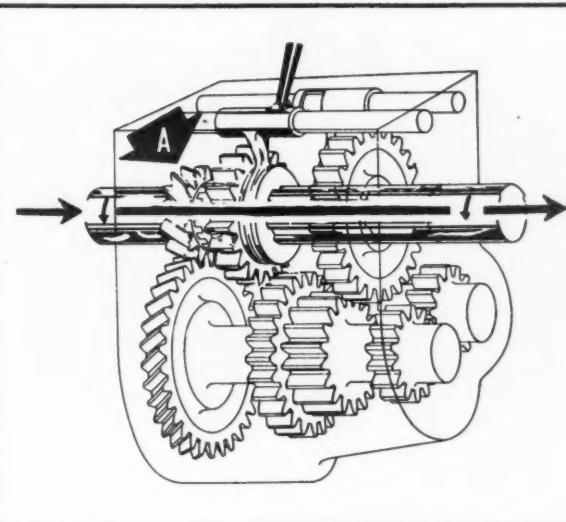
The main shaft, low and reverse sliding gear (arrow C) is splined to its shaft. For power flow in low, gear slides forward to mesh with low gear on the countershaft (arrow D).

When the transmission is in high, or direct drive, power comes directly from the drive gear (arrow A) to the main shaft. Power flow is indicated by the heavy line.



The second speed gear of the countershaft cluster (arrow C) is always in mesh with the second speed gear on the main shaft (arrow D). Synchronizer locks gear to shaft.

A reverse idler gear, mounted on its own shaft (arrow A) in the rear of the transmission case, is always in mesh with the reverse gear of the countershaft cluster (arrow B).



NEWScene



Crunch! Stock Car Free-for-All ▲

Crunch! Seven drivers were hurt, none of them seriously, when 44 stock cars piled up on a track at Hibbing, Minn., during a 100-lap race. About 15 of the wrecked cars are shown above.

◀ Three Concepts on Locomotion

A young lady, top left, tries out a home-made three-wheeled car at an exhibition in Milan, Italy. The vehicle is powered by a one-cylinder motor scooter engine and will do 40 mph. The four-cylinder engine of the only Russian-built Pobeza in the U. S., center, is examined by owner Stanley Slotkin, his daughter Chicki, 15, and 11-year-old son Mark. Slotkin obtained the car in Helsinki from a Russian dealer. Edward Hammond, Newton, Mass., bottom, built this contraption, which he calls a "Weep," from spare parts of 16 automobiles, a tractor, a mowing machine and a sailboat. The "Weep" averages 60 miles on a gallon of gas and has a top speed of 60 mph.

Claims Heavyweight Cabbie Crown ▶

A weighty argument is posed by Earl W. "Tiny" Goodwin, Providence, R. I., taxi driver, who says that Philadelphia cabbie, Leo P. Devine, is a mere upstart in claiming the heavyweight cab driver crown. Goodwin tips the scale at 475 pounds and has a waist spread of 62 inches. His rival recorded 420 pounds. He also claimed 62 inches around the middle.



Engineering Highlights

by
Joseph Geschelin
Engineering Editor



Armored Car Crashed 'Curtain' ▲

Henry Ford, II, chairman of the Crusade for Freedom, inspects the bogus five-ton armored car in which eight Czechs crashed through the Iron Curtain. It is now on display in this country at the Pentagon. It formed the background for a Crusade for Freedom Conference in Washington, D. C., attended by nearly 5,000 leaders in industry, labor, civic, fraternal, religious, youth and professional organizations.



JUST a year ago there was considerable excitement concerning the possibility that tubeless tires would be found on 1953 passenger cars as standard equipment. A check into the situation disclosed that tubeless tires would not be offered at that time. On the other hand, there appeared to be a strong possibility that 1954 models would feature this latest development.

No Trend Indicated

After completing a survey of prospects for 1954, it is evident that tubeless tires are not yet ready for this season, and that no industry trend is indicated for the start of 1954 production. This does not rule out the possibility that some one make might decide to offer tubeless tires on a higher-priced model to test public acceptance.

Several of the major tire producers feel that in the present state of development they cannot produce tubeless tires at costs that would be attractive to car manufacturers by comparison with conventional tires. It is obvious that increased costs at the factory might be a bar to acceptance at this time on the part of many car manufacturers.

Companies Gain Experience

Meanwhile, the tire companies have been supplying a large volume of tubeless tires of various types to the retail market and are gaining valuable service experience. Similarly, car manufacturers have been continuing road work and testing in order to accumulate data on which to base recommendations.

Washington Area Dealers Change Association Name

Due to expanding membership the name of the Washington Automotive Trade Association was changed to Automotive Trade Association National Capital Area. An election was held and an entire new Board of Directors elected. Officers elected for the coming year are: Edwin L. Stohlmeyer, president; Harry Monroe, Jr., first vice-president; Walter H. Eyles, second vice-president; Joseph B. Paul, secretary; and M. Marshall Marston, treasurer.

Directors: District of Columbia—Curtis E. McCalip, Jr., Kenneth H. Moore, A. Leftwich Sinclair and T. K. Wheeler.

Maryland—Robert W. Banning, A. H. Bowis and Frank P. Palmer.

Virginia—C. H. Mason and Robert D. Stewart.

Kindred Line—Robert E. Phelps.

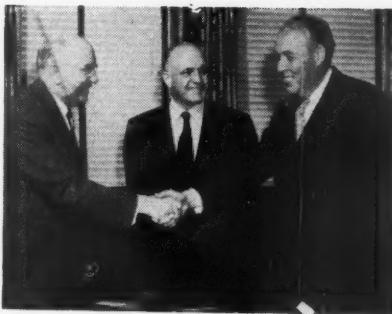
Cross-Country Trip Shows Women Are Safer Drivers

Two women radio broadcasters, one a former Brunswick, Me., new car dealership general manager, have driven from New York to San Francisco to check comparative driving habits of men and women drivers.



Driving a Hudson Jet, and accompanied during most of the trip by state and local safety officials, Claire Emory and Dorothy Mignault spotted 2,061 highway violations, 1,821 of them committed by men, 240 by women. Men accounted for 865 speeding offenses, women only 84.

It took three days, eight hours, at posted highway speeds, to make the trip, two full days less than the record run, made in 1916 over the same route, by race driver Ralph Mulford in a Hudson Super Six touring car.



AC General Manager

Joseph A. Anderson, right, has been named general manager of AC Spark Plug Division of General Motors, succeeding George Mann, Jr., who retired. Mann is shown congratulating Anderson. S. E. Skinner, GM vice-president in charge of the accessory group, which included AC, is in the center.

PAA Holds 33rd Annual Convention At Pittsburgh

The Pennsylvania Automotive Association held its 33rd annual convention in Pittsburgh. W. M. McCune was elected president for the coming year. He succeeds Oscar M. Mohn, who, as past president, remains on the executive committee.

Other officers elected are: vice-presidents—R. W. Frantz, William K. Gottshall, John P. Mooney, E. A. Sahli and John B. White. Secretary—C. E. Snyder. Treasurer—A. W. Golden.

1953 RETAIL CAR SALES BY PRICE GROUPS*

NUMBER OF CARS

Price Group	1953		1952		1953		1952	
	Units†	% of Total	Units†	% of Total	Units†	% of Total	Units†	% of Total
Under \$2,000...	267,251	57.45	93,167	43.80	2,118,507	54.41	1,385,409	51.77
\$2,001 to \$2,500...	140,487	28.09	67,444	31.71	1,105,684	28.39	818,918	30.60
\$2,501 to \$3,500...	53,733	10.74	36,559	17.19	508,698	13.06	353,572	13.21
Over \$3,500....	18,605	3.72	15,518	7.30	161,226	4.14	118,350	4.42
Total.....	500,076	100.00	212,688	100.00	3,894,125	100.00	2,676,250	100.00

DOLLAR VOLUME OF SALES*

August

Price Group	1953		1952		1953		1952	
	Dollars	% of Total	Dollars	% of Total	Dollars	% of Total	Dollars	% of Total
Under \$2,000...	\$511,729,532	49.12	\$165,380,389	35.28	\$3,786,814,686	45.87	\$2,447,533,021	43.31
\$2,001 to \$2,500...	313,614,171	30.10	149,049,654	31.80	2,467,619,325	29.89	1,814,686,118	32.12
\$2,501 to \$3,500...	147,498,133	14.18	97,569,361	20.82	1,385,782,207	16.91	954,704,007	16.90
Over \$3,500....	68,994,561	6.82	56,704,702	12.10	805,140,379	7.33	433,553,271	7.67
Total.....	\$1,041,824,397	100.00	\$468,704,126	100.00	\$8,255,157,097	100.00	\$5,850,466,417	100.00

*—Calculated on basis of new car registrations, as reported by R. L. Polk & Co., in conjunction with advertised delivered price at factory of four door sedan or equivalent model. Does not include transportation charges or extra equipment.

†—New registrations of American made cars only. Does not include imported foreign cars.

1953 NEW PASSENGER CAR REGISTRATIONS*

Arranged by Makes in Descending Order According to the 1953 Eight Months' Totals

EIGHT MONTHS

MAKE	August		July		August		1953		1952	
	1953	1952	1953	1952	1953	1952	1953	1952	1953	1952
Chevrolet.....	117,175	128,040	27,216	21,297	536,042	23.38	19,89	19,89	23.38	19,89
Ford.....	108,858	98,178	37,670	88,153	439,821	17.40	16,32	16,32	17.40	16,32
Plymouth.....	49,218	54,884	18,796	406,451	285,512	10,38	10,97	10,97	10,38	10,97
Buick.....	39,070	43,194	15,415	319,008	201,747	8,15	7,49	7,49	8,15	7,49
Pontiac.....	35,039	39,352	15,187	277,772	171,274	7,09	6,35	6,35	7,09	6,35
Oldsmobile.....	28,475	32,923	10,255	229,729	141,332	5,87	5,24	5,24	5,87	5,24
Dodge.....	21,988	26,856	14,958	209,227	171,544	5,34	6,36	6,36	5,34	6,36
Mercury.....	26,515	22,270	11,771	168,253	115,745	4,30	4,29	4,29	4,30	4,29
Studebaker.....	14,817	13,450	7,200	112,318	108,892	2,87	4,04	4,04	2,87	4,04
Nash.....	10,092	12,178	9,086	108,810	95,834	2,78	3,55	3,55	2,78	3,55
Chrysler.....	12,629	14,321	7,792	108,505	80,155	2,77	2,97	2,97	2,77	2,97
De Soto.....	10,162	11,185	5,691	83,942	61,696	2,14	2,29	2,29	2,14	2,29
Cadillac.....	8,429	8,752	7,510	74,642	57,471	1,91	2,13	2,13	1,91	2,13
Packard.....	5,110	6,470	4,736	56,119	47,279	1,43	1,75	1,75	1,43	1,75
Hudson.....	5,017	6,236	6,776	49,809	55,051	1,27	2,04	2,04	1,27	2,04
Willys.....	2,960	3,140	4,065	33,455	26,482	.85	.98	.98	.85	.98
Lincoln.....	3,988	4,435	2,758	29,984	17,989	.77	.67	.67	.77	.67
Kaiser.....	1,630	2,067	3,358	19,135	27,149	.49	1.01	1.01	.49	1.01
Henry J.....	955	1,173	1,748	9,197	21,909	.23	.81	.81	.23	.81
MG (British).....	477	637	852	5,112	4,970	.13	.18	.18	.13	.18
Hillman (British).....	355	338	440	3,256	3,019	.08	.11	.11	.08	.11
Jaguar (British).....	308	370	348	2,834	1,949	.07	.07	.07	.07	.07
Ford (British).....	217	296	273	2,808	2,415	.07	.09	.09	.07	.09
Austin (British).....	201	232	432	2,375	3,388	.06	.13	.13	.06	.13
Allstate.....	59	123	157	603	1,070	.02	.04	.04	.02	.04
Misc. Domestic.....	43	87	242	1,311	3,278	.03	.12	.12	.03	.12
Misc. Foreign.....	644	616	517	4,749	3,026	.12	.11	.11	.12	.11
Total—All Makes..	502,430	533,763	215,688	3,916,238	2,695,997	100.00	100.00	100.00	100.00	100.00

* Based on data from R. L. Polk & Co.



Competitor for Vuky's Crown?

Harry Kuenzel, 10, gives his racing car a workout in the yard of his home at South Deerfield, Mass. Harry attended the 500-mile Indianapolis race this year, becoming very interested in racing. Returning home, he built himself a racer powered by a 2½ hp gasoline engine which will operate for about an hour on a quart of gasoline. Most of the parts were picked up from a junkyard.

Sound Business Judgment In Auto Instalment Field

The administration of instalment financing by franchised automobile dealers has set a standard of sound business judgment for other extenders of credit, a finance executive reported.

"No other area of credit has shown up so well, either in its administration or its basic sound-

ness, as the automobile instalment field," said L. Walter Lundell, vice-president of CIT Financial Corp. in charge of its automobile financing subsidiary. Lundell spoke before the Automobile Dealers Association of Alabama at Biloxi, Miss.

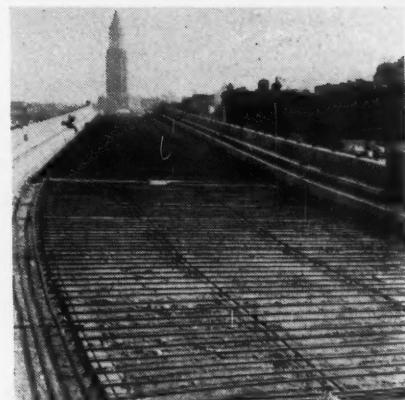
Lundell said recent studies by CIT showed that its customers' average new car down payment is about 42 per cent of the purchase price. Most new car sales, he said, are made with maximum terms of 24 months, with correspondingly lesser terms for used car buyers.

Lundell warned of selling terms instead of merchandise. "When credit to buy a car is offered on a sensible basis," he said, "the car stays sold, customer relations are protected, the dealer's full profit on the transaction is assured, chances of selling that customer another car are enhanced, the reputation of the dealership is kept secure and the reputation of the manufacturer and its product is safeguarded."

Lundell urged the dealers to help increase public knowledge of instalment credit and its benefits to the individual and to the economy.

New Jersey Association Elects Officers

The New Jersey Automotive Trade Association recently held its 35th annual meeting and convention at Atlantic City, N. J. Officers elected for the coming year are: Seated (l. to r.): Hopwood Mullen, president (Ford-Wildwood) and Walter F. Conover, first vice-president (Ford-Princeton). Standing (l. to r.): E. R. Crow, treasurer (Ford-Westfield); Elmer Blauvert, second vice-president (Pontiac-Montclair); William J. Mallon, secretary, Newark; Otto P. Henneburger, manager Newark; and Gerald S. Kleinhanz, third vice-president (Buick-Woodbury).



Snow Melting System in Boston

To eliminate ice and snow hazards for motorists and help solve traffic congestion in cold weather, snow melting systems are being installed in access ramps leading to the new \$25 million Boston Aerial Highway. More than 200 tons of wrought iron pipe are used in seven ramps of the highway. Heated water mixed with anti-freeze is circulated through pipe grids embedded in concrete.

"Sell Product, Not Price," Field Sales Manager Says

Automobile salesmen must begin selling their product and its feature instead of price, Frank Frost, field sales manager of Packard, told 40 members of the company's national dealer council. They were in Detroit to discuss current business conditions and advise the company on future planning.

Discussing the current competitive conditions, Frost said "the customer is often a better salesman than the salesman himself," indicating the need for increased emphasis on salesman training.

Frost announced that a master service training school will soon be set up in Detroit to train the factory organization which will work with dealers in the field. Dealer service personnel will attend similar schools in each zone. These are scheduled for opening in December.

Frost reported that dealer used car stocks continue on a downward trend, but said used cars will continue to require selling effort equal to that expended on new cars. Used cars must be priced, conditioned, displayed and merchandised for fast turnover in the same market in which they were taken in, he said.

How to Use A Mechanical "Office Hand"

**Mechanical control over money and merchandise
gives this Dayton, Ohio, shop owner a day-to-day
recapitulation of total charge and cash business**

TODAY, many progressive businesses extend credit because it means increased sales and service opportunities. The automotive service business is no exception to this rule. With individual repair bills running into hundreds of dollars, insurance work, and commercial accounts, the shop owner must extend credit or be content with a smaller shop.

Frank Cecrle, a successful operator in Dayton, Ohio, opened a small backyard garage in 1946. Today he operates a modern well-equipped 15 car shop that does an annual volume of \$65,000—80 per cent of which is done on a charge basis. He sends out over 200 customer statements a month.

Credit Increases Paper Work

Cecrle knows both the values and pitfalls of credit. He said, "There's no doubt that credit increases business, but don't forget, it also increases the amount of paper work. I was almost swamped by the time it took to keep my charge accounts posted correctly. I did all of the postings by hand, and I would spend two or three nights a week, working four or five hours each night trying to bring my charge records up to date. I frequently made mistakes and would send out bills to customers who had already made their payments. Needless to say, I was pretty discouraged with the amount of time this work required. I kept falling farther and farther behind until I reached the point where I had to

(Continued on page 82)



More time is devoted to business as Cecrle no longer spends long hours keeping records.



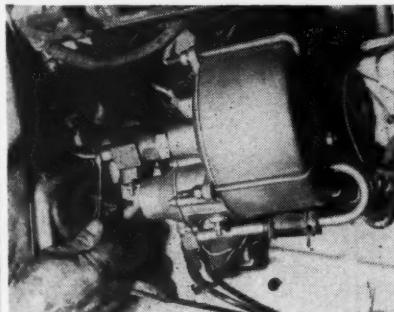
Cecrle finds it a time-saving task to keep all transactions up to date with his posting machine.

New PRODUCTS SHOW WINDOW

FOR FURTHER INFORMATION USE POSTCARD FACING NEXT PAGE

464. Power Brakes

Bendix Products Division: Power brake field installations for virtually all passenger cars are now available as an after market item. The power brake replacement unit consists of a Hydrovac and a complete fittings kit. The Hydrovac is a self-contained, sealed power braking unit with no external moving parts. The fittings kit contains all the necessary tubing, hose, bracket and connections. The latter are separately packed in boxes labeled A, B and C, in the order in which they are used for installation. An illustrated InstallOgraph is packaged with each unit, giving a step by step installation procedure. No special tools are required. Eleven

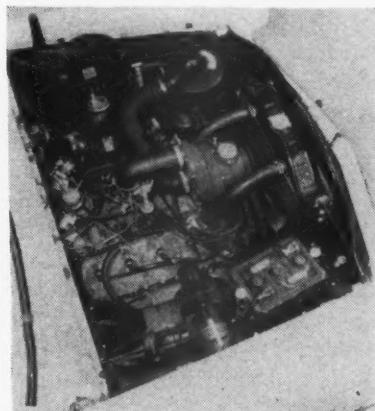


fitting kits cover all the cars in which the replacement power brake can be installed.

465. Super Charger

McCulloch Motors Corp.: A supercharger designated as VS-57 has a variable speed drive which permits the supercharger to stand by until extra horse power is desired. The drive is controlled by engine manifold pressure so that it shifts into high gear when the

throttle is opened, delivering maximum pressure for the horsepower increase. Letting up on



the accelerator automatically shifts the supercharger back to a lower speed and drops the pressure so that the unit is again in standby position. This feature enables the VS-57 to deliver maximum air pressure even though the engine is operating at low speeds, something that previous centrifugal superchargers were unable to do. The VS-57 automatically shifts down into its lower ratio when the supercharged air delivered to the carburetor exceeds 5 psi or if its impeller exceeds 3000 rpm. The VS-57 is suitable for most passenger and sports cars. Individual mounting brackets and instructions will be furnished by the company with each unit.

466. Paint Stripper

J. F. Kerns Co.: This company announces the marketing of its Liquisan, paint and varnish stripper, for use on cars, trucks and tractors. One application is said

to penetrate several layers of paint, varnish or enamel. Spread it over the surface with a rag or paint brush—let it stand until the finish softens—wipe away with a cloth or steel wool. It is available in pints, quarts or gallon cans.

467. Brake Bleeder

Raybestos-Manhattan, Inc.: A one-man brake bleeder and fluid dispenser is being offered with an assortment of brake lining sets or lined brake shoe sets. Pressure is built up and maintained in the fluid reservoir by a hand operated air pressure bulb and an air check valve on the unit. No air compressor or outside connections are necessary. Flow is controlled by a shut-off clamp. Included with



the unit are a universal four-way master cylinder plug, that has fittings for all passenger cars as well as most trucks, and a one-gallon fluid reservoir tank.

468. Impact Tool

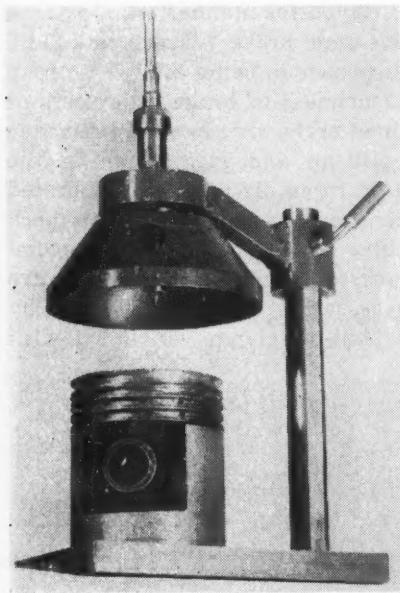
Ingersoll-Rand Co.: A new size 2U Impactool has been designed for nut running, tapping, screw driving, reaming, drilling, and so

New Products Continued from Page 67

forth. It is rated for nuts running up to $\frac{1}{4}$ in. bolt size. The 2U Impactool can be used for automatic transmission jobs and body shop work as well as overhauling clutches, standard transmissions; installation of accessories; and motor cycle, motor boat, lawn mower, and other small engine repairs. It will operate from any 110-volt source.

469. Piston Jig

Frank N. Wood Co.: A centering drill extends through the centering cone of the Trucut piston centering fixture. The cone is lowered onto the head of the piston, spring tension is applied, and cone is locked on upright post with lock



screw. This centers the piston. The center drill, operated by a portable electric drill or drill press, puts the center in piston head. A depth stop is provided which may be set for predetermined depth of center hole.

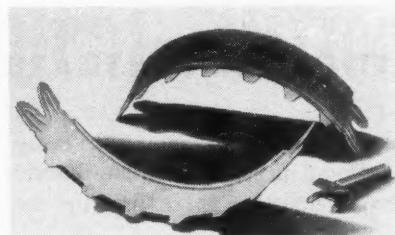
470. Seat Cover Fabric

The Ellenboro Mills, Inc.: This company recently announced the development of a new seat cover fabric—Nycar. It is said to be shock-proof, resists burns, tears and abrasions. It is vat dyed for

color fastness and is finished with du Pont's water repellent Zelan.

471. Brake Lining

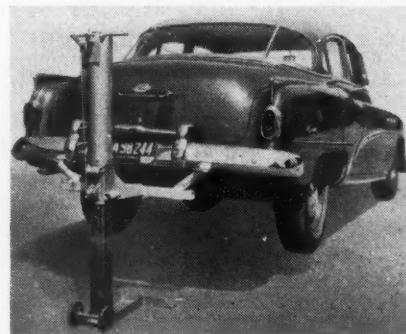
Russell Manufacturing Company: This company has announced the introduction of Rusco



Fused Fabric Lock-On, factory bonded brake lining which is claimed to be installed in the same time that it takes to change a tire. It is claimed that no more shoe exchanges are required. This device is a metal strip to which the lining is bonded at the factory. The metal strip is installed by means of metal tags directly to the old brake shoe. If the old brake shoe is equipped with bonded lining, this lining can quickly be removed by means of a debonder which uses city or bottled gas. This debonder can be obtained as an option with the purchase of Lock-On sets. This company claims that 29 sets will service over 900 model cars and light trucks.

472. Bumper Lift

Automotive Equipment Mfg. Co.: The Lee Bumper Lift is designed for use in tire shops, service departments and service sta-



tions. Uses include tire and wheel work, checking brakes, removing

pinions, lubricating springs and shackles, wheel bearings, washing wheels, and so forth. Features of the lift include: an automatic mechanical latch which locks in any of six working heights; broad base lifting fingers which hold bumper at bumper brackets; a 3000 lb. capacity; and a maximum lifting height of 32 in.

473. Sanding Adapter

Behr-Manning Corp.: The new sanding disc adapter, called Behr-cat adapter Model JK-1, has two components — the base which threads permanently onto the standard spindle of the grinder, and the top which threads into the accessories to be mounted. By equipping several accessories with tops they can all be kept ready for use on one tool. Any number of combinations of accessories can be kept permanently set up with



tops ready for immediate use. Depending on the type of jobs which crop up most often, a repaint shop can choose to set up all or any such accessories as a disc back-up plate, cone mandrel, fiber disc, feather edger, pneumatic drum, compounding pad, polishing bonnet, or wire brush.

474. Cleaning Unit

Graymills Corp.: A cold parts cleaning unit for flushing, spraying, or soaking metal parts, dies, bearings and assemblies has been added to the Graymills' line of
(Continued on page 142)



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Frank P. Tighe, EDITOR MOTOR AGE
P. O. Box 76, Village Station, N. Y. 14, N. Y.

11/53

Please send me further information on the New Products, the code numbers of which I have circled below

464. Power Brakes	475. Tire Gun	486. Frame Lift
465. Super Charger	476. Muffler	487. Tool Catalogs
466. Paint Stripper	477. Selling Device	488. Metal Hammer
467. Brake Bleeder	478. Locking Wrench	489. Squeak Stopper
468. Impact Tool	479. Paint Pamphlet	490. Battery Charger
469. Piston Jig	480. Cooling System Manual	491. Floor Rug
470. Seat Cover Fabric	481. Drum Lathe	492. Pull Kit
471. Brake Lining	482. Gap Gage	493. Tune Up Pack
472. Bumper Lift	483. Drill Attachment	494. Revolving Bins
473. Sanding Adapter	484. Exhaust System	495. Display Board
474. Cleaning Unit	485. Towing Hitch	496. Timing Gear Oil Line

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Frank P. Tighe, EDITOR MOTOR AGE
Chestnut & 56th Sts., Philadelphia 39, Pa.

11/53

We liked the following features in this issue of Motor Age:

1. _____
2. _____
3. _____

Here's how Motor Age can be more helpful to us:

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- Each month Motor Age's New Products Show Window describes dozens of fast-moving items and money and time saving equipment from the country's leading manufacturers of dependable automotive products.
- When you want more free information on any of these products, simply mark a circle around the same number on the post card as appears under the item described. You may circle as many items as you wish. Separate information will be sent to you on each item. Be sure to give your full name and address.

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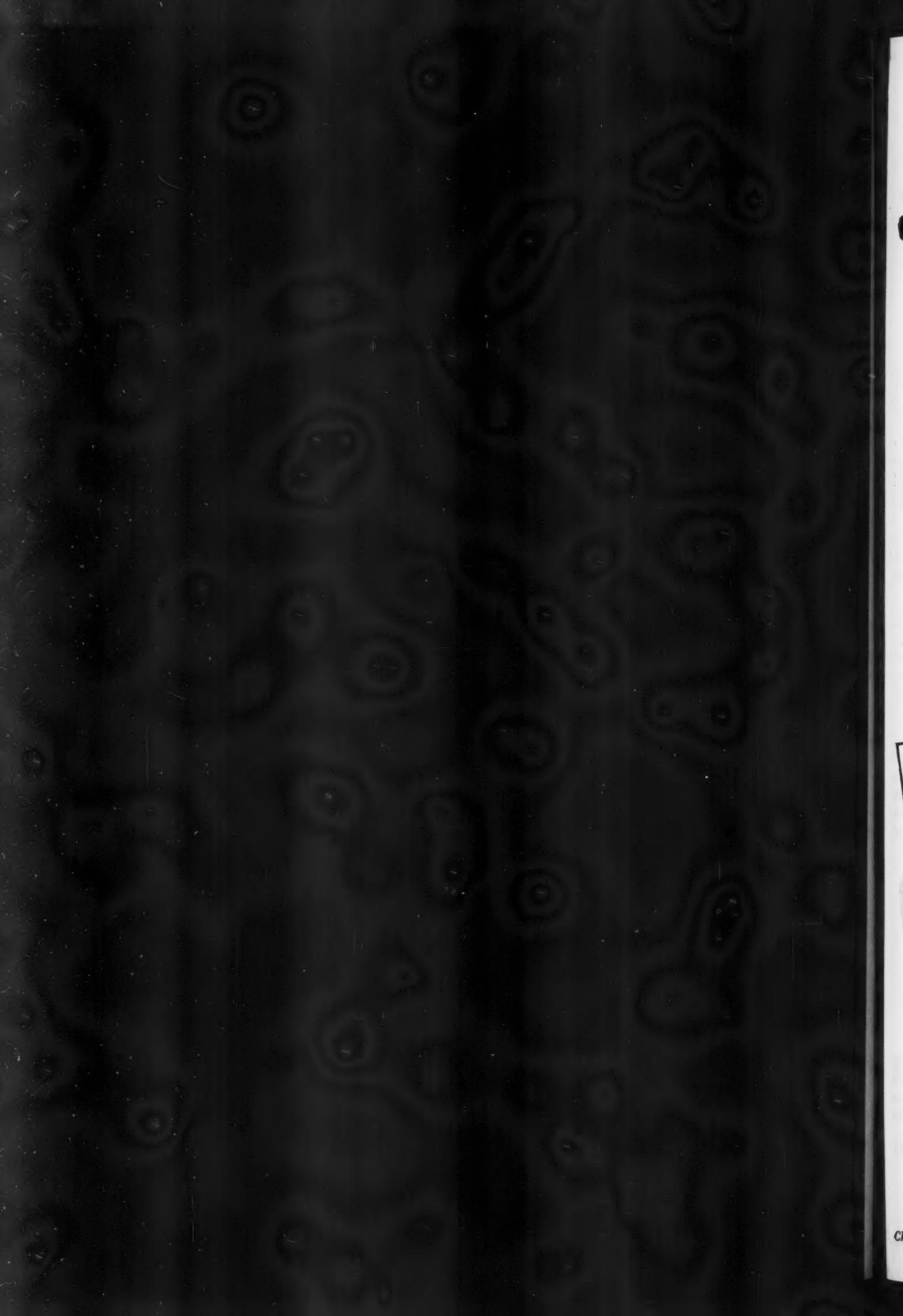
Chestnut and 56th Sts.

Philadelphia 39, Pa.



Attention: Frank P. Tighe, Editor







The famous Studebaker low silhouette

*Now more clearly than ever
the shape of the future for
automobile design*

Wall Street Journal says:

"Studebaker, which was a big factor in setting early-postwar auto styles, may now be setting the pattern for the next few years . . . A top Detroit stylist, employed by a rival manufacturer, says that the current Studebaker will affect the future looks of more competitive makes than the industry would like to admit . . ."

Museum of Modern Art acclaims Studebaker

The world-famed New York Museum of Modern Art chose a Studebaker for exhibit as one of the ten most beautiful automobiles in the world. Studebaker was the only American-designed and American-manufactured car to be accorded this enviable honor.

Motor World says:

"There can be no question about it—Studebaker has, with the new model, made every other American car look ten years older . . . Studebaker has credited the American public with having a respectable amount of sophistication and good taste and has built a car with appeal to such people."

Auto Sport Review says:

"Studebaker has done the American car-buying public a considerable service. It has produced one of the best conceived, cleanest and handsomest exterior shapes ever put on any production car anywhere . . ."

Studebaker honored by Fashion Academy

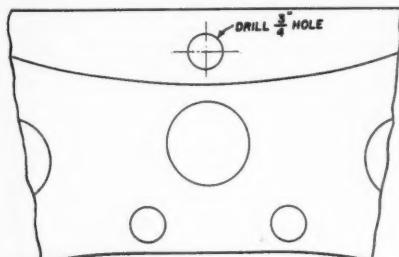
Fashion Academy, the noted New York School of fashion design, has awarded Studebaker its Gold Medal for outstanding design and distinctive styling—calling the new Studebaker "a tribute to modern creative genius, an incentive to forward-looking achievement."

Service Suggestions

From the Factories

Template Used to Drill Hole In Nash Rear Crossmember

Due to the location of the rear engine support cross-member on "Statesman" and "Rambler" series, it is difficult to remove the hex head drain plug from the Hydra-Matic torus cover for



draining. In fact, you may "chew up" the head of the plug so bad that it will require replacement when you finally get it out.

Shown is a template that can be used to drill a $\frac{3}{4}$ -in. hole in the rear crossmember. The sketch is one-third actual size.

Ross Steering Gear Lubrication Specification

As a result of changes in production methods, it has been possible to broaden the specification for steering gear housing lubricant used in Ross steering gears. The new recommendation is as follows: Any S.A.E. (mineral oil) Gear Oil made and sold by reputable companies.

This revision in specification lifts the choice of steering gear lubricants from among those on the enclosed restricted list published by Ross and now includes all the lubricants on that list as well as any other S.A.E. 104 (mineral oil) gear oil made and sold by reputable companies.



Trunnion Thread Bind Causes Noisy Suspension on Willys

Excessive tightening of the bolt and nut holding the lower end of the shock absorber on Willys cars can make the trunnion threads bind, causing noisy front suspensions.

To stop the noise, loosen the nut and work the suspension up and down until the bind works free. Then tighten the nut and torque it to 50 to 55 foot pounds.

If the noise persists, place a .005-in. spacer washer on the bolt, between the shock absorber bushing spacer and the control arm yoke. Tighten and torque the nut to 50 to 55 foot pounds.

Corrosion of Zinc Retainer Plate Causes Poor Ground

The fuel gage electric circuits on Plymouths is grounded to the fuel tank through the fuel gage retainer plate. Any corrosion which might appear on a zinc coated retainer plate could interfere with the ground and result in an incorrect or fluctuating reading on the gage.

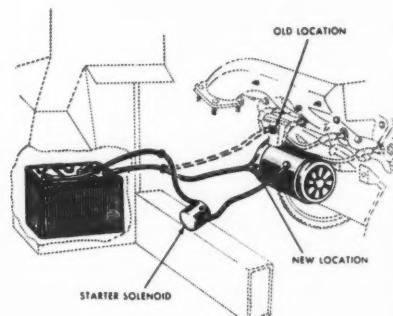
A quick check of the ground at the retainer plate may be made by tapping the plate sharply with a screwdriver or hammer. Repositioning of the plate in this manner will

provide a new ground contact. If a satisfactory reading of the fuel gage is then obtained, replace the retainer plate.

Always use cadmium plated retainer plates for replacement. Zinc coated plates may corrode in some instances. The cadmium plating resists corrosion and can be identified by its dull, light gray finish.

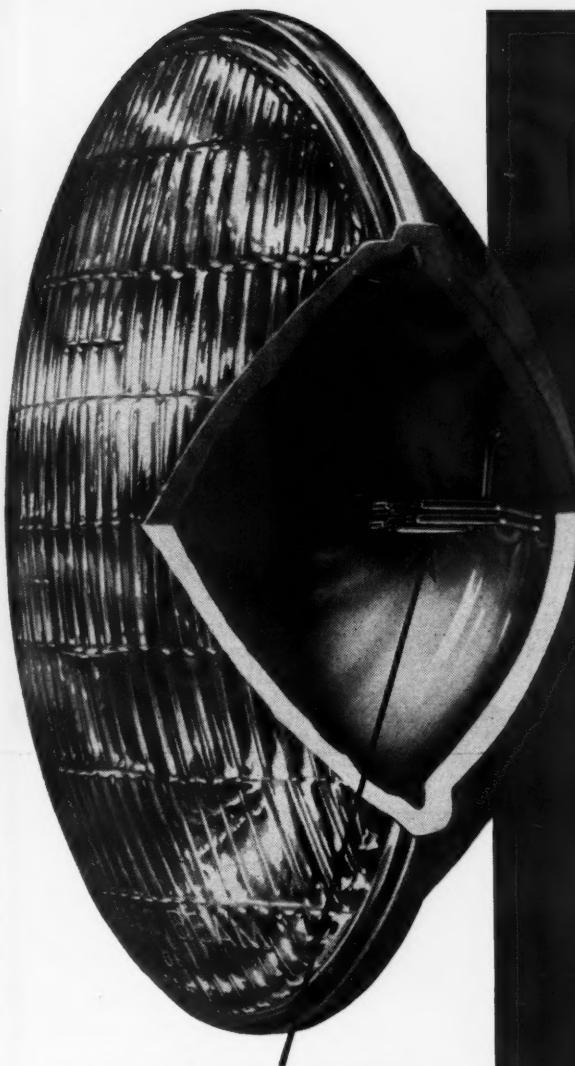
New Location of the Battery To Ground Cable on Lincoln

To improve the starter motor operation it is recommended that the battery to ground cable on 1952-1953 Lincoln models be



moved from its present location on the right hand cylinder block to one of the existing Starting Motor Mounting Cap Screws as shown.

(Continued on page 106)



*Cutaway shows rugged filaments
that take the place of
an inner bulb*

General Electric LEAVES OUT THE BULB TO INCREASE THE LIGHT

AUTO headlamps always used to depend on a small inner bulb for their light. But because this bulb was so small, it was soon covered by black deposits from the burning filament on the inside. The longer the bulb burned—the dimmer it got. Then General Electric found a way to make a headlamp that has *no* inner bulb to blacken. Instead,

a G-E sealed beam headlamp is one big bulb, and no matter how long it burns, there's no loss of light. Blackening is no problem. That's why G-E *all-glass* sealed beam headlamps stay bright—give *more* light *longer*! For your customers' safety and driving comfort, be sure to install General Electric headlamps.

G-E All-Glass headlamps DO NOT GROW DIM

You can put your confidence in —

GENERAL  **ELECTRIC**



Shop Kinks

If you've come upon an original idea for making a job easier, a special tool, short cut on a job or any trick of value to other readers, write it down and if necessary, make a rough sketch. Just make it clear. Send it to Motor Age. If we can use your Kink it may bring seven-fifty, possibly 25 dollars. All submissions become the property of Chilton Company. Because of the numbers received, no entries can be returned.

For The Best Kink Published Each Month . . . \$2.50

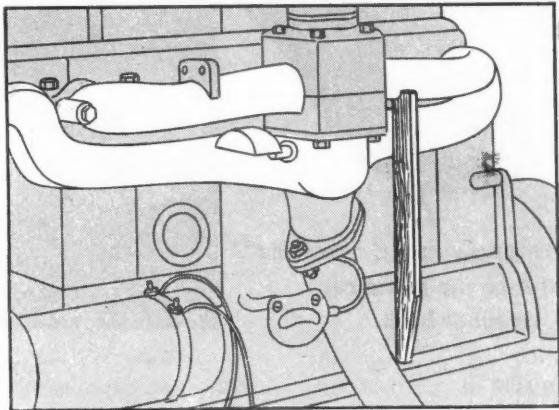
For All Kinks Published Each Month . . . \$7.50

Removing Gear Shift Rattle On '49 to '53 Plymouths

The gear shift sometimes rattles on a Plymouth, 1949 to 1953 models. To eliminate this rattle, remove the gear shift lever handle and the two screws holding the shifting lever assembly to the steering column. Slide the cover down and turn the head clockwise on the end of the shifting rod to shorten the rod. This puts more pressure on the rod and handle, keeping them from rattling. Approximately one round, or in severe cases, two rounds are necessary. In some instances the selector rod may have to be re-adjusted, since the shortening of the rod may make shifting into high and second gears difficult. *W. Q. Turpen, Wilcoxson Motors, Inc., 622 N. Walnut, St. Elmo, Ill.*

Tie Cord on Tools If There Is Danger of Dropping Them

We do a lot of body work and especially door panel work, and to prevent dropping a lot of small tools, wrenches and sockets into the bottom of the door panels we tie a piece of cord or fishline to the tool, and that saves many an hour looking for the tools. Just pull the string and its all done. *A. H. Wild, Wild Brothers, Springfield, Minn.*



Board Steadies Manifold on Overhaul

A piece of board can be cut in a few minutes that will work on practically all Chevrolet models to hold the manifold steady and out of the way when grinding the valves or overhauling the motor. Cut a slight indentation on the end of a common $\frac{3}{4}$ -in. or 1-in. board to fit against the intake manifold. It braces against the pan flange and under the intake manifold just back of the heat riser and saves the time of taking the manifold clear out or resting entirely on the exhaust pipe. *A. B. Shipley, Ray Vine's Service, Fond Du Lac, Duluth, Minn.*

Jack Car Under Center Post To Open Jammed Front Door

On '49, '50 and '51 Fords, we have found that it is almost impossible to open the front door when the

locking assembly breaks. By jacking up the car with a floor jack under the frame, under the center post, the jammed door can be opened. *Bruno A. Nicolai, Brookline, Mass.*

Don't settle for

50%

chrome protection!

No chrome piston ring set can really give complete wear protection in the "heart of the engine" unless it provides a chrome-plated TOP ring, as well as a chrome-plated oil ring. For the top ring operates where heat is highest, pressure is greatest, and lubrication is poorest!

That's why Perfect Circle's 2-in-1 chrome piston ring set has established new standards of ring performance...why it seals compression and controls oil for *over twice as long as old style ring sets!* And only 2-in-1 furnishes an alternate HiPressure spring with each oil ring, for positive control even in badly worn engines! Perfect Circle Corporation, Hagerstown, Indiana; The Perfect Circle Co., Ltd., Toronto, Ontario.

In the 2-in-1 set, solid chrome plating on both the top and bottom ring resists wear over entire area of ring travel. Cylinders, pistons, and rings are assured double life.



Perfect Circle
PISTON RINGS

The Standard of Comparison

Shop Kinks Continued from Page 74

Tubing Brazed to Drill Bit Aids Broken Stud Removal

We recently had a 1950 Pontiac with the two cap screws holding the left rear motor support insulator to the block broken off. In attempting to drill out the broken pieces, we found that the Hydra-Matic valve body prevented us from getting the drill near enough to the transmission for the drilling.

To avoid removing the Hydra-Matic assembly, we brazed a 3/16 inch drill bit into a 40 inch long piece of 1/4 inch Bundyflex tubing. By experimenting, we were able to cut the tubing to the proper length and with this extended length of the drill bit, together with the slight flexibility of the tubing, we were able to drill out both broken bolts, using an "easy-out" for the removal. To aid in holding the bit in place on the stud, we slid a 5/16 inch S.A.E. nut over the tubing, and held this with pliers. It was necessary to cut the tube to one length to drill one stud, and to shorten it for the top stud. *Steve Ditto, Ditto Auto Parts and Service, 2574 Lamar Ave., Memphis, Tenn.*

Rear Brake Drums on Ford Cut Down Without Adapter

In replacing the brakes on a 1949 Ford, I found that the brake drums were in such bad shape that they'd have to be cut down, but I didn't have an adapter to cut the rear drums. I decided to use the front drum, putting the rear drum on the front hub bolts and using the other part for centering. It worked fine. *Wm. Mol, Silver Creek Garage, Silver Creek, Minn.*

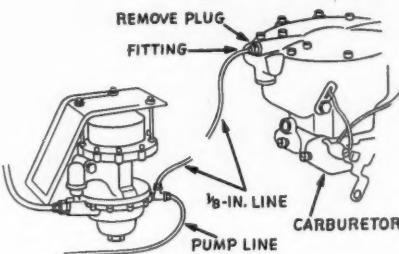
Paper Along Top of Block Keeps Emery Dust Off Walls

When doing valve jobs on L head engines, I have found a sure way to keep flying emery dust from getting on the cylinder walls. Tape a newspaper, with masking tape one inch wide, along the top of the engine between the valve parts and

cylinders. This keeps the dust from getting on the tops of pistons, cylinder walls, and down inside the ring. This is not only fast and neat, but it saves the walls from being scratched by the dust, which causes oil burning, etc. *Fred Johnson, Central Garage, 246 East 21st St., Erie, Pa.*

Vent Line from Carburetor Helps to Eliminate Flooding

We have had a lot of cars flood when setting awhile and they cannot be started. To eliminate this situation we run a small line from



the carburetor inlet back behind the fuel pump, on the fuel pump line that comes from the tank; so when the engine is shut off it immediately relieves the pressure from the needle and the seat. *Milton Sitorius, Haley Chevrolet Co., Gothenberg, Nebraska.*

Hold-Down Spring Vibration Stopped with Length of Hose

We had trouble locating a vibration, in a 1952 Chevrolet, when the door was slammed or when driving over a not too rough road. The noise was found in the hood hold-down springs at the cowl. We muffled the vibration by inserting about six inches of garden hose into the hollow of the spring. *Martin A. Hosta, Parma, O.*

Timing Case Cover Oil Seal Installation on Dodge V-8's

To install a timing case cover oil seal package in a 1953 Dodge V-8, first remove the radiator assembly and the water pump assembly. Jack

the engine high enough to remove the lower pulley; then remove the chain case cover by prying with a screw driver on each side of the dowel pins. Then install the seal. To replace the cover, use gasket sealing compound on the bottom of the cover to seal the front end of the oil pan. This procedure saves several hours. *Will Anderson, Chilton Motors, Inc., Madison, N. C.*

Cures Blown Head Gaskets On Kaiser-Frazer Engines

We were having considerable trouble with Kaisers and Frazers blowing the head gaskets between the Nos. 3 and 4 cylinders. If they did not blow they would leak compression and cause a very rough idle. We first attempted to use different types of gasket cements, but to no avail. We also had the heads ground; we even took one to a local machine shop and had it resurfaced. Still no results.

It was then that I started to use two small copper wires, about the size of a pin, side by side on top of the narrow web of the gasket between these two cylinders. I would bend the ends of the wires around the two water port holes of the gasket and with about 1/8 inch or 5/32 inch of wire on the opposite side pinched tight with pliers. Then, by handling the head with care in laying it on the gasket, or by using dummy studs, I would install the head and torque it to factory specifications.

We are an authorized Kaiser-Frazer dealer and have used this treatment on every motor from which we have removed the head in over a year, with no customer comeback. This includes well over 100 gaskets that are still in service. *John G. Lavery, R.F.D. 2, Guy Mills, Pennsylvania.*

Release Broken Spark Plug Using Deep Socket Wrench

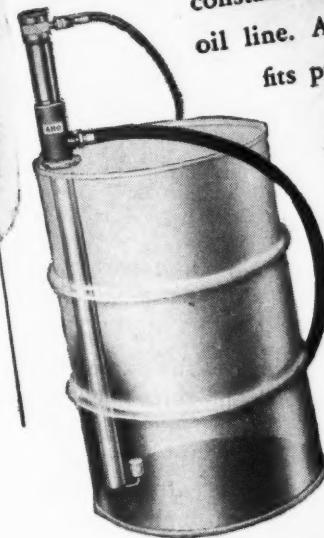
Sometimes spark plugs break off when taken out of Chrysler cars. It is very difficult to get out. A 3/4 inch deep socket has to be driven over the broken part to release it. *Ernest W. Richter, 6026 N. Palmetto St., Philadelphia 11, Pa.*

ARO PUMPS for Volume Delivery!

AIR-OPERATED MOTOR OIL Supply Pump

FOR OVERHEAD REELS
OR OIL BARS!

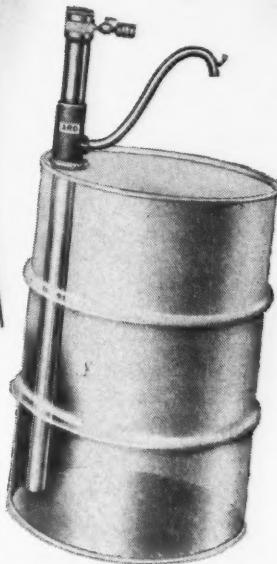
Model 60061... Gives fast volume delivery of oil from drum to dispensing outlets such as overhead reels or oil bars... Simple design, low cost, easy to handle in drum changing. Float-type air-eliminator gives constant full-fluid charge in oil line. Adjustable adapter fits pump to any bung-type drum with 2" P. T. opening, 100 lb. to 400 lb. capacity.



AIR-OPERATED Hi-Volume TRANSFER Pump

DELIVERS UP TO 20
GALLONS PER MINUTE!

Model 60060... for motor oil, light-bodied grease, anti-freeze, paint, other fluids. Provides fast, easy, thrifty way to transfer fluids from bung-type drums to working containers or reservoirs. Low-cost, light-weight, durable... fits all bung-type drums, 100 to 400 lb. capacity... handles all light-bodied fluids.



ARO BUILT DEPENDABILITY!

SEND . . .

ARO

**LUBE
EQUIPMENT**

Also . . . AIR TOOLS . . . AIRCRAFT
PRODUCTS . . . GREASE FITTINGS

The Aro Equipment Corp., Bryan, Ohio

Without obligation, send bulletin giving complete details on the new Aro Motor Oil Supply Pump and Hi-Volume Transfer Pump.

Name.....

Company.....

Street..... City..... State . . .

"There are no strings to this offer," Boody assured Quie. "My only interest is giving these 4-H youngsters a chance to get purebred stock. They can buy gilts of any breed—it doesn't matter to me whether it's a Chester White or Spotted Poland China or a Duroc. But I do want to see the best available stock being used. And the

fund should be continued on a permanent basis. In that way there'll be pigs available for a different group of 4-H'ers each spring."

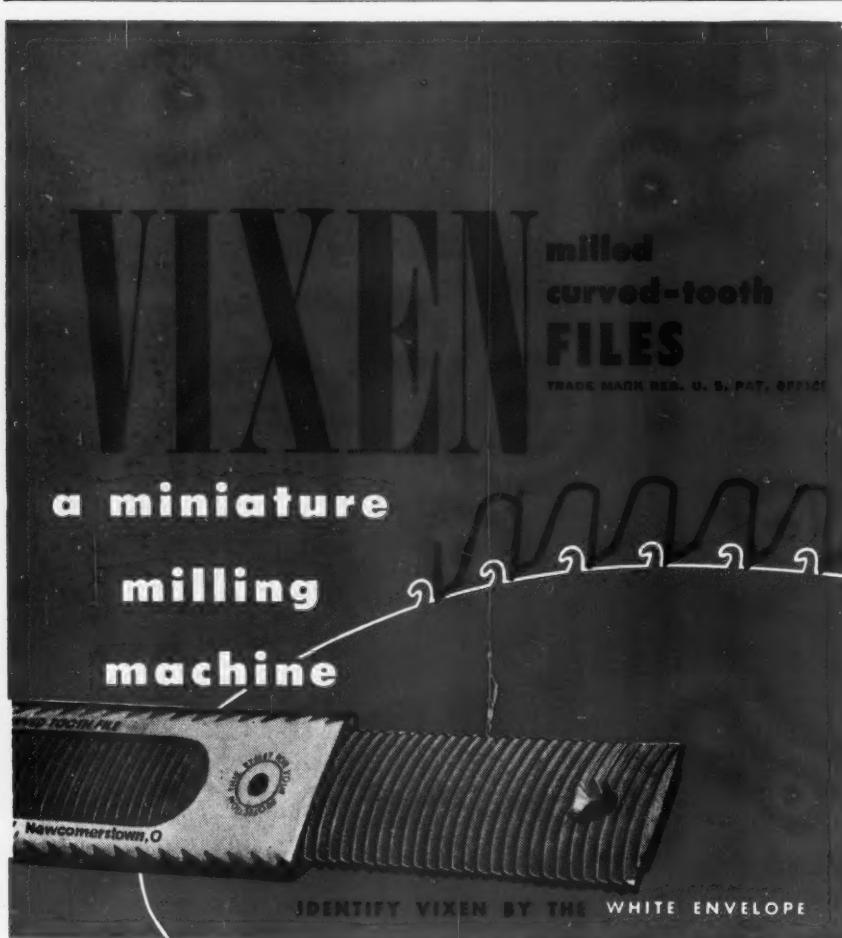
Quie liked the plan. So did the executive committee of the Dakota County 4-H Federation. Members contacted different swine breeders throughout Dakota county and secured their co-operation.

"We're sold on this plan," commented Henry J. Fox of Rosemount, a member of the committee. "If a youngster follows sound management and feeding practices, he's reasonably certain of getting large, fast-gaining litters."

The first year, seven of the clubs selected one of their members to receive gilts. Eight clubs took part in the 1951 program while in 1952 there were 10 clubs participating.

Typical of the 4-H'ers who jumped at the chance to get purebred gilts is Jim Malecha, 21, son of Mr. and Mrs. Joseph Malecha of Northfield. Three years ago, his club selected him as the recipient of a purebred gilt. Jim picked out a Hampshire from the herd of J. L. Stime of Randolph, Minn.

"There is a real gilt," Jim declares. "Thus far she's given me six litters in three years and I've marketed an average of 10 pigs to each litter. In all, she farrowed 76 pigs in three years but has lost some of them, of course."



the original . . .
and still the best!

HELLER BROTHERS COMPANY
America's Oldest File Manufacturer
NEWCOMERSTOWN, OHIO



Only **HELLER** makes the **VIXEN**



The sow is the nucleus of a fine herd of Hampshire hogs which the Malechas are developing on their large farm. When Larry Boody and Mr. Quie called at the Malecha farm recently, they found husky little pigs scampering all over the building. Jim is in partnership with his father in the hog raising business. They have 11 sows between them, but since they rent "on halves," they're entitled to only half the pigs from those 11 sows. In addition, a younger

(Continued on page 80)



"I've cashed in on the
FORGOTTEN SERVICE
 with my Schrader Gauge"

And you can do as well
 with Certified Air Service



William F. Knight, owner of Knight's Service Station
 Burr Rd. & Military Highway, San Antonio, Texas says:

"I've used Schrader Products since 1918. I've learned that they have a longer life, are more dependable, and are widely received by the public. In turn, I've put this knowledge to good use and have 'cashed in' on the Schrader Air Service Plan with my customers."

You, too, can use your Schrader Gauge like an oil dipstick and follow the 3 and 5 pound heat build-up formula when inflating tires. With this plan for regular, certified gauging, you can increase your tube repairs, new tire sales . . . in fact, *all your TBA business . . . with 'steadier' customers*. Four simple steps in Manual A-200 show you how. Write for your copy, today. And, use genuine Schrader Products to *certify* your air service.

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FIRST NAME IN TIRE VALVES

FOR ORIGINAL EQUIPMENT AND REPLACEMENT

brother, Glenn, has two Hampshire gilts.

"It's about as good a deal as anybody could hope to get," Jim comments. "The plan has helped me to become established in the hog business. I'm certainly appreciative of Mr. Boody's help."

Not all the youngsters have been as fortunate as Jim Malecha in selecting a gilt. For example, one

boy had a gilt that farrowed nine gilts but lost eight of them. Another 4-H'er, tears welling from his eyes, reported his sows had presented him with three pigs—"but all three of them died."

It's a tough situation for the hapless youngsters but the committee has drawn up rules to handle cases like those mentioned. It usually extends the payment

time by another six months. By that time the gilt should have farrowed another litter. If the law of averages is operating, she would have done a better job of saving her pigs. The boy then pays for his gilt by selling enough of his pigs at the annual junior livestock show held the first Monday of each October in Farmington.

How does Larry Boody feel about his plan?

"Frankly, I'm delighted," he observed recently. "It's doing a good job of building good will for me. And, in addition, some of the farm boys are dropping in and buying cheap cars from me. They know I'm taking a keen interest in their project. Why, the other day a

Three Forward Steps

Exclusive
in the NEW

PAR 7½ H.P. and 10 H.P. UNIT



Exclusive PLUS Values

REDESIGNED HORIZONTAL CHECK VALVE provides positive insurance against leaks caused by dirt collecting around the seat. This *exclusive* PAR feature means smooth, trouble-free operation—reduced maintenance costs.

NEW POSITIVE TANK DRAIN VALVE, also *exclusive* with PAR, is operated with a finger-tip touch. A completely new-type screen and rubber seat keeps dirt out.

INCREMENT STARTING, standard on 10 H.P. model, cuts initial drag when the motor is started.

These new unique features—and others—make the PAR 7½ H.P. and 10 H.P. Model the *best* investment in air compressors. This tank-mounted, two-stage unit is built to operate smoothly for years, and to serve faithfully even under the most rugged operating conditions. Write for complete details.



PAR AIR COMPRESSORS



ICE CREAM
SANDWICH
WRAPPING
MACHINES



WEED-O-MATIC
CANDY & COOKIE
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MACHINES



PAR COMPRESSOR DIVISION
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MORPAC
BOTTLED
OIL
PACKAGING
MACHINES



GLASS FORMING
MACHINES

EXPORT DEPT. • 1902 Jefferson Avenue, Toledo 2, Ohio • Cables: BRADFORDA



"Now remember everything I told you, and above all, hit him back."

Northfield farmer bought a new Chevrolet from me. He told me that I'm out of his trade area but he wanted to trade with an automobile dealer who was doing something for the farm youngsters."

Boody points out that his plan isn't patented or copyrighted.

"I'd like to see more dealers or merchants trying the plan," he said.

And, for that matter, so do 4-H leaders.

Boody established his Chevrolet dealership about nine years ago in Farmington. Since then he's taken a keen interest in all civic and rural affairs. Ever willing to contribute his time and efforts, he feels that it pays sizable dividends.

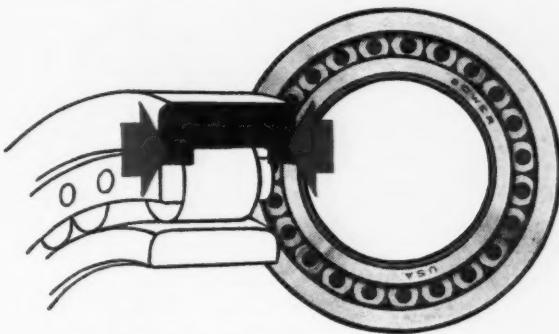
"Dividends both in good will and sales," he smiles.

***Two Lips
make all
the difference***



**BOWER STRAIGHT ROLLER BEARINGS HAVE
DOUBLE-LIP CONSTRUCTION . . . FOR STRENGTH!**

Pete the Pelican combines tackle-box and creel in one unit . . . a design that really fills the bill! Same with Bower straight roller bearings. Double-lip design *keeps* rollers aligned for longer bearing life. They'll stand up under the occasional thrust loads that cause failure of ordinary bearings. Ask your Federal-Mogul jobber!



BOWER
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Federal-Mogul Service
(Division of Federal-Mogul Corporation)
DETROIT 13, MICHIGAN

For service applications: Bower double
lip straight roller bearings • Spher-O-
Honed tapered roller bearings •
Journal roller assemblies



"It just won't curl!"

Arnold M. Ulrich
Paul Bros., Phila., Pa.



PERMACEL TAPE

Office Hand . . .

Continued from Page 66

hire a part-time bookkeeper or else change my method of operation."

Cecrle decided to mechanize his charge records with a charge posting machine. With this machine, he keeps his charge records up to date at all times, since postings (either charges or credits) are made on the customer's individual ledger card by the machine at the same time the bill is made out or money received on account.

This is how Cecrle uses the posting machine in his daily work.

WORK TICKETS. A duplicate work ticket is made out for every job that comes into the garage. The mechanic doing the work enters on the ticket all parts and materials used and the hours spent performing the work. After the job is finished the work ticket is returned to Cecrle for pricing.

CASH AND CHARGE RECORDS. All cash and charge transactions are recorded on the machine in the following manner: First, taxable amounts are entered, then the tax on this amount is entered, next non-taxable items are entered, and the total taken. Since all amounts entered in the machine are mechanically added, there can be no mistakes in addition. The machine prints the total on the work ticket and at the same time issues a receipt. The original work ticket is retained by the garage as proof of payment. The duplicate and the register-printed receipt are given to the customer.

CUSTOMERS LEDGER CARDS. On charge transactions, Cecrle takes the customers' individual ledger card, inserts it into the machine and prints the new amount on the card. Then he picks up the old balance from the card and enters it in the machine and gets the total amount owed printed on the card.

RECEIVED ON ACCOUNT. When handling a received-on-account transaction, the customer's individual ledger card is selected from the file and placed on the

(Continued on page 84)

Better See Motorola Car Radios

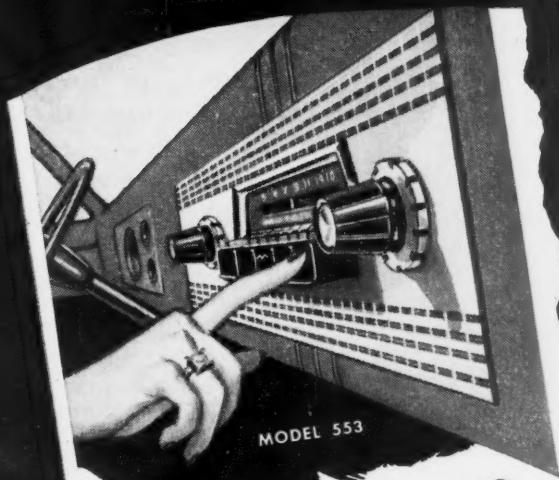
FIRST IN ST
RADIO SALES

SHORTEST, STRAIGHTEST
STORY IN CAR RADIO TODAY!

8,000,000 car owners will see the Motorola car radio story in national magazines in the next two months alone. And there will be more ads every month of the year! That's why you can be sure that when your customers think of car radios they'll think of Motorola. So—see the man from Motorola, stock up now on the full car radio line.

LOWEST PRICE EVER!

Motorola

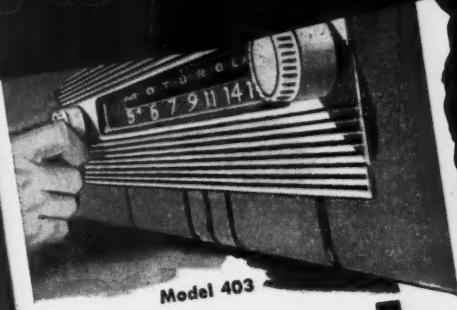


MODEL 553

PUSH BUTTON RADIO
ONLY \$54⁹⁵

Now—you can have real driving pleasure with a Motorola push-button radio at a sensational low price—only \$54.95! It's easy to install in your car. New larger speaker gives new depth of tone never believed possible in a set so compact!

Five station push-to-lock control locks in the station; razor-sharp selectivity; full automatic volume control reduces fading. Low battery drain! So easy to install, it can be put in your car while you wait.



Model 403

Motorola
Car Radio
ONLY \$39⁹⁵

Imagine a powerful, magnificently toned radio like this at such an unbelievably low price! High fidelity, superior tone, extra range and power. Patented motor noise filter, automatic volume control, big speaker and control head adaptable to instrument panel. So easy to install, it can be put in your car while you wait.

Motorola

The Golden Voice of Radio

printing table of the register. The amount of payment is then recorded on the register using the Received-on-Account key. This amount prints on the ledger card and on the receipt. The latter is given to the customer as proof of payment.

PAID OUTS. When money is paid out the machine issues a re-

ceipt which is placed in the cash drawer. The nature of the payment, such as auto parts or supplies, or whatever it might be, is written on the back of the receipt in order that the amount can be charged to the proper classification of the general ledger.

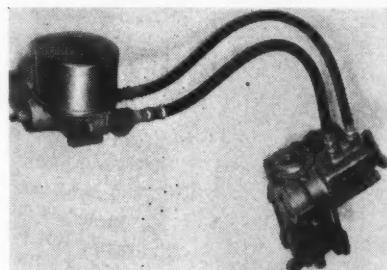
COMPLETE CONTROL OVER ALL CHARGES. With this mod-

ern, mechanical system, Cecile has complete control over every transaction in his garage. The machine has separate totals so he can determine quickly, and at any time, the total amount of his charge and cash business. He knows at all times, the amount of money outstanding since all he has to do is subtract money received on account from the total charge figures. And too, he can maintain a tight control over the amount of credit which he wants to extend to each customer since all records are always posted up-to-date.

Cecile said the machine paid for itself in less than a year by eliminating mistakes in addition and forgotten charges, and that he would never operate any sort of business again without having mechanical control over his money and merchandise.

New Power Steering Unit Has Direct-Action Feature

Announcement of a new type integral power steering unit for passenger cars, trucks, buses and tractors was made known by Ainsworth Mfg. Corp. The unit is said to be more compact and weighs approximately half as much (40 pounds) as others now offered on passenger cars, according to Warren H. Farr, president of Ainsworth.

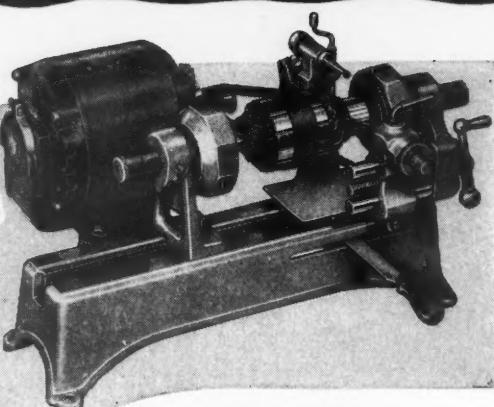


Complete removal or replacement of the Ainsworth unit is said to be effected in only 20 minutes, without disturbing the passenger compartment or disconnecting or connecting any electrical or transmission components.

The direct-action principle of the unit eliminates racks and pinions. Large valve openings minimize oil heating and cut valve movement, reducing backlash to a minimum. Road shock is taken directly by the fluid motor.

THIS TRUCUT PACKAGE REALLY PUTS YOU IN BUSINESS!

GET EXTRA PROFITS
from
Starter-Generator
Work!



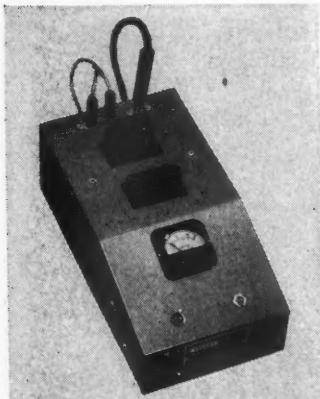
TRUCUT ARMATURE LATHE
AND UNDERCUTTER

There's plenty of extra profit in starter-generator work . . . if your shop is equipped to handle it!

And you can handle it with these three TRUCUT tools . . . all tried and tested . . . all designed especially for automotive repair jobs! With them, you can machine and undercut commutators perfectly; test for shorts, open circuits, and grounds; make quick, easy work of dismantling and assembling generators. The TRUCUT Press is also useful on dozens of other jobs around your shop.

This TRUCUT package actually pays for itself in an amazingly short time. Enables you to handle work you are now sending out . . . or helps you to do it more quickly and profitably! Write for free details and catalog M-II, today.

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"Ford owners have been spreading the word about me!"

"I let them know I use Genuine Ford Parts like these and they're telling their friends."

Ford batteries

are tested to start at 20 below zero. They're also shake- and impact-tested for durability; cycled from full charge to full discharge hundreds of times for long life. This testing by Ford engineers before approval for manufacture is assurance that a Ford battery will keep Fords ready to go at all times!



Ford oil filter cartridges

are Track Tested in Fords for thousands of miles. Both full-flow and by-pass filters are designed to remove dust, carbon particles, and other oil contaminants dependably and efficiently without removing useful oil additives!



Ford spark plugs

are manufactured to exact Ford specifications. They're designed and balanced to your Ford's ignition system to give Ford engines smooth performance and high gasoline mileage. And, like all Genuine Ford Parts, they're made right to fit right in Fords!

That's how the news gets around . . . from your display of the Genuine Ford Parts sign . . . from the word-of-mouth advertising you get from the new customers your sign brings in. And in addition, there's national advertising constantly reminding Ford owners everywhere that Genuine Ford Parts are best for their cars.

This is the time of year when a lot of profitable Ford business can be gained from owners who are hurrying to ready their cars for winter. You can sell the frequently needed parts pictured here . . . and many others . . . if you'll put this business-boosting Ford Parts sign to work for you. The coupon will quickly bring you full information.



MAIL THIS COUPON NOW!

PARTS AND SERVICE SALES DEPARTMENT

Ford Division, Ford Motor Company, Box 658, Dearborn, Mich.
Please send me complete information telling me how independent garages can get a Genuine Ford Parts sign. I'd like to cash in on this, too!

FIRM NAME _____

INDIVIDUAL'S NAME _____

ADDRESS _____

CITY _____ **STATE** _____ **II**

Jan looked up, obviously disgusted, "Nope, it's lope. It goes bb . . . bb . . . bbbup . . ."

"Want to leave it a while," Pop interrupted. "We'll tune this engine, and you can pick it up before noon."

"You know what's wrong with this car, Pop?" Jan persisted.

"Sure I do. You've got a rough

spot that is either due to carburetion or ignition. We'll locate your trouble but quick."

"I guess you don't know what's wrong with this car. I guess you don't know very much about radioactivity do you?"

"Never listen since television," Pop joked, "but we're heck for activity around here."

"That car is radio active, Pop, and you'll have to de-activate her to get that lope out of her. I'm telling you."

Pop bit off the end of his cigar and stuffed it way back in his mouth so he could listen. "Whatever gave you that idea, Jan?"

"You see I parked this car too near the laboratory one day last week. It was a restricted area, but my own stall had been taken. And when I got in to go home that night, that car was radio active. And now it lopes. That's it. It lopes, and already I'm getting some of that stuff in the legs."

Pop laughed, obviously in good humor this morning. There's a



Specially designed for auto mechanics, this tool measures any crankshaft journal up to 5" diameter without removing the crankshaft from the engine! It shows at once the amount of journal wear so that replacement inserts can be accurately selected. Provides positive measurements 0" — 5" and eliminates need of retiming the valve gear — a great timesaver. Ask your jobber or send coupon for catalog.

Some other popular automotive tools by Central —



Range Micrometer No. 44 (Patented). Range 0" — 4" measures any part, from a pin to a large piston. Crowned face of anvil eliminates gagging.



Connecting Rod Journal Micrometer No. 50. Range, 1 1/2" — 2 1/2", makes this a handy tool in any auto repair shop. Graduations on under side of barrel for easy reading.

We also make a full line of micrometers for inside and outside measurements, available singly or in sets.

CENTRAL
Certified
Accuracy
MICROMETERS

FOR HALF A CENTURY SPECIALISTS IN FINE MICROMETERS

THE CENTRAL TOOL COMPANY
462 Wellington Ave., Cranston 10, R. I.

Please send me your complete catalog.

Name. _____

Company. _____

Street. _____

City. _____ State. _____

The difference between a conviction and a prejudice is that you explain a conviction without getting angry. *Unknown.*

laugh in at least one customer a day he always said—if you have had a good breakfast. "OK, Jan, we'll de-lope her and de-activate her and de-atom her if you want. But meantime we'll give her an old fashioned check up just for good measure."

"Tommy," he called. "Will you take over? Give this engine a complete check-up, and then road test it—before noon. I'll be back after lunch, but Jan wants the car early. So take your time but hurry the ell up."

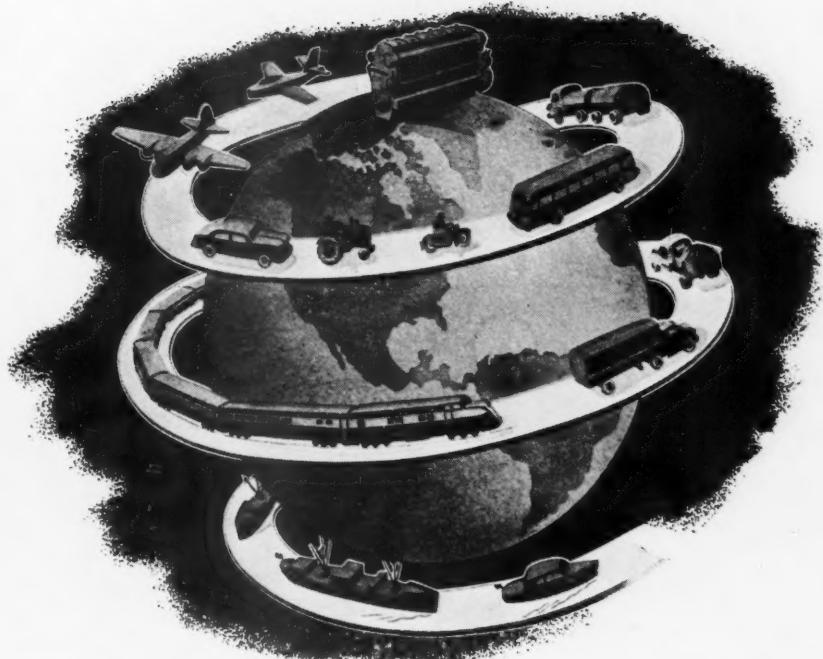
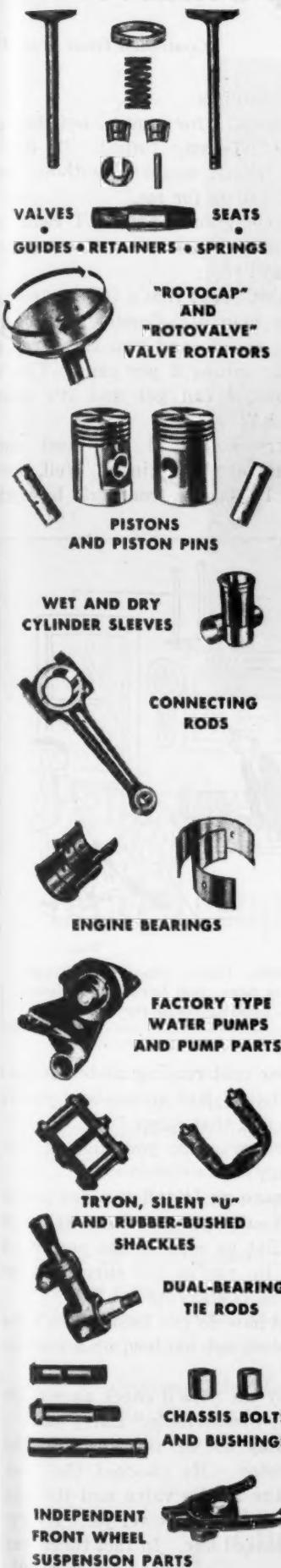
Jan limped off, and Tommy, tickled as the monkey who fell into the potato peeler, took the Chev to the tune up stall. This was the first time Pop had ever left him on his own for the diagnosis, but then Pop didn't think the trouble was serious.

He checked compression. He removed the spark plugs and checked them for gap and for proper heat range. He measured the point setting and checked the contacts for condition. He even examined the manifold heat valve.

"Put her on the analyzer," Larry called. "That sounded like carburetor trouble to me."

"That, my friend, is just what I was aiming to do next." Tommy always became irked when suggestions came too fast. By the time he had rolled the stand over, connected the leads and hooked up the tail piece, Larry was over, eager to

(Continued on page 88)



Thompson Products
serves the
World of Motors

THOMPSON PRODUCTS, with over 26,000 employees and factories in thirteen cities, produces high-precision parts for every type of internal combustion engine in use today—automotive, industrial, aircraft and marine.

Many of the improvements that brought these modern engines came from Thompson engineering and metallurgical laboratories over a period of fifty years. In these laboratories the development of new

or improved products never ends.

Every well-known manufacturer of cars, trucks, buses, tractors and automotive, industrial and marine engines—and of airplanes and aircraft engines—uses Thompson parts as original equipment. Thompson replacement parts for the automotive engine and chassis duplicate original equipment. They are known, trusted and used by experienced repairmen everywhere.

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The Double 3-Point Suspension does it!

PERFECT Wheel Weights are made with a larger radius than the rim, so that when applied they create constant pressure at points 1-2 and 3 (shown above in top photo). Bearing points to prevent "rocking" are also formed at points 1a-2a and 3a (shown in small illustration).

Such a DOUBLE 3 point suspension principle prevents slipping—"rocking" and loss of weights. PERFECT'S "stay put"—they give SATISFACTION. That's why they're the world's largest selling wheel weights.

This principle applies to both the "C" and "U" type Perfect Weights.



"U" Type

Fits all passenger cars made before 1949 which had either E or F type rims. Still gives satisfaction on most cars manufactured up to present time. Made in the following sizes: $\frac{1}{2}$ - 1- $1\frac{1}{2}$ - 2- $2\frac{1}{2}$ - 3- $3\frac{1}{2}$ - 4- $4\frac{1}{2}$ - 5- $5\frac{1}{2}$ - 6-ounce.



"Special" Type

Made for all late model Cadillacs equipped with large chrome hub caps covering the entire wheel. Made in the following sizes: $1\frac{1}{2}$ - 2- $2\frac{1}{2}$ - 3-ounce.



PERFECT EQUIPMENT CORP.

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KOKOMO, IND.

P. O. Box 706



Manufacturers of Passenger and Truck Wheel Weights — Cell Spacer Rings — Caster Shims.

Pop O'Neill . . .

Continued from Page 86

read the dials.

"Thanks for your assistance, Larry," Tommy fumed. "I don't know what I would do without you to read dials for me."

Larry ignored him. "I read 90 per cent at 200 rpm. Check that, Tommy?"

"Sure. And that's OK according to my manual. Combustion chart shows an 85, and you can have a plus or minus 5 per cent. That's the best I can get and it's near enough."

Larry scratched his head and frowned at the engine. "Well, normally I'd say you could get by with



"Look, lady, you can't leave them here, just because it's been raining for three days."

a 90 per cent reading under no-load conditions. But remember, you've got to find that surge."

"Well, what do you suggest, Dr. Anthony?"

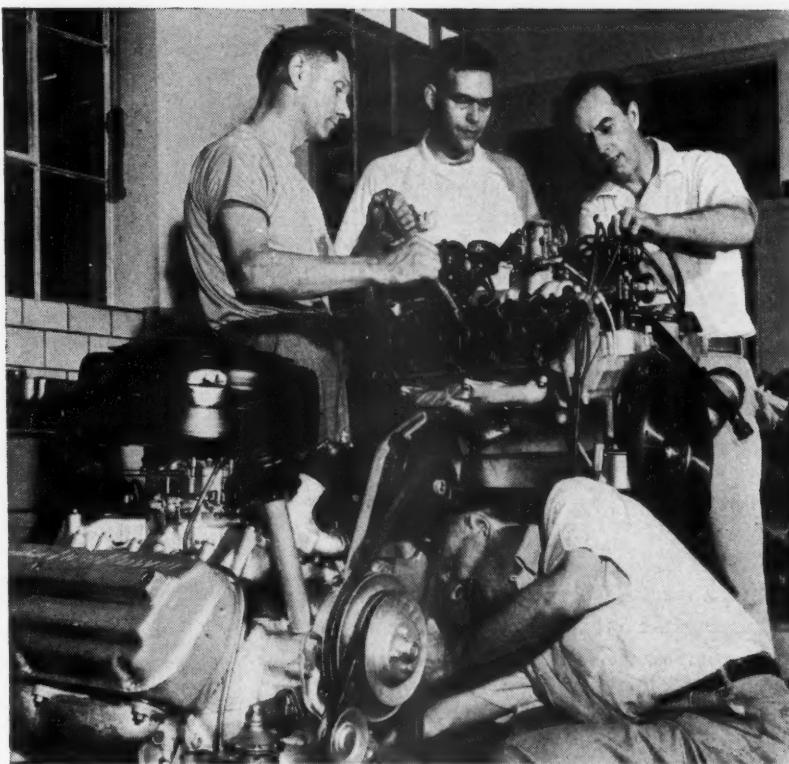
"I move we install a richer power jet. You see your idle mixture is OK. But as soon as the power jet comes in, you've got surge. I believe she is starving out."

"But how do you know it isn't the float level, set too low, or a restriction?"

"May be. We'll check as we (or as you) disassemble," Larry said.

Tommy set about removing the carburetor. He checked the float level, the needle valve and its seat and removed the power jet. Everything looked fine. In fact there was

(Continued on page 90)



Hemispherical combustion chamber engine proved superior by one full compression ratio

Going beyond the theory of higher compression to get more power, Chrysler Corporation engineers have opened a new field of automobile engine design with their introduction of the hemispherical combustion chamber.

The hemispherical chamber at borderline knock is far ahead of other types—at least one full compression ratio better than the second best. The over-all performance of this chamber on regular grade gasolines has excited thousands of owners of Dodge, De Soto, and Chrysler cars—and won the attention of automobile engineers everywhere.

To determine the effect of increased compression ratio, Chrysler Corporation engineers set up a stock Chrysler V8 FirePower engine rated at

180 horsepower. It was tested at 7.5 to 1, 10 to 1, and 12.5 to 1 compression ratios. The engine responded better to compression ratio increases than any known engine design. What is more, without touching compression ratio—with changes in manifolds and carburetor alone—this engine was found to be capable of much greater power yield.

Chrysler Corporation dome-type engines have been developed as high as 430 horsepower using standard engine bore and stroke.

With the new engines, Chrysler engineering has reached another new goal: engines of extraordinary efficiency and durability, yielding the highest horsepower per cubic inch with maximum fuel economy for buyers of Chrysler Corporation cars.

Chrysler Corporation

PLYMOUTH • DODGE • DE SOTO • CHRYSLER & IMPERIAL

evidence that the carburetor had been recently removed and cleaned. He installed a No. 60 jet and reassembled the unit. By this time Larry was back for the test.

"Look, Tommy. We've got an 85 per cent reading, and I do believe that gallop is gone."

"I hate to say it, since it was your idea and not mine, but I guess

you're right."

Now it was noon and Jan was back for his car. "Did you get that activity out of her?" he queried. "If you didn't, I won't ride in that car. It's killing me in the legs. I know that radio-stuff has affected my legs. It's what I get for working at that laboratory. Why I might get cancer."

Don't take just ANY brand of SOLDER ... here are the reasons why

There is a theory that a man who specializes in mousetraps will build better mousetraps than the one who makes merely wood or metal products. This is the narrow view of the self-conscious specialist.

Others say, "Specialists are those who know more and more about less and less," which invites the conclusion that the greatest specialist of all must be he who knows everything about nothing.

Federated believes that the hundreds of products of non-ferrous origin have a basic family resemblance, and that the more we know about all, the more we know about each. Thus lead is found with silver and antimony, and copper and tin are found with iron. These various elements and others must be separated and refined, or in some cases, discarded. Then, re-combined in different ways, sometimes alone, sometimes with other non-ferrous ingredients, they make brass, bronze and aluminum ingot; solders and type metals; die casting alloys, lead products and bearing metals; anodes for plating and for cathodic protection.

Federated's competent organization of scientists and technicians, its widespread field force of servicemen, and its network of qualified distributors, are unified under the central policy of producing a

brand of top-quality products and making these products most useful to every customer from the smallest to the largest.

We count it an advantage to you, and to the jobber from whom you buy, that Federated's organization is big enough to specialize in quality control and service from the depths of the mine to the user's shop. It is one of the reasons that the Federated brand is known as coming from "Headquarters for Non-ferrous Metals."

Federated Metals Division

AMERICAN SMELTING AND REFINING COMPANY
120 BROADWAY, NEW YORK 5, N. Y.

In Canada: Federated Metals Canada, Ltd., Toronto, Montreal

Aluminum and Magnesium, Babbitts, Brasses and Bronzes, Anodes, Die Casting Metals, Lead and Lead Products, Solders, Type Metals



"It's OK now, Jan," Larry said. "But you'd better have a doctor check you over. You're limping badly."

"I might never live," Jan complained.

He drove off still grumbling about careless scientists who go around spilling stuff that affects cars and people and gad knows what, and Tommy wiped his brow. "That was too easy," he said. "I feel trouble coming back."

"Now that's a heck of a thing for a mechanic to say," Pop growled into his ear. "Did you go over that car from stem to stern?"

"Yes, and we found that the carburetor jets were too lean," Tommy said.

Pop frowned. "Well, I hope so," he said uncertainly.

"Now that's a heck of a way for a proprietor to talk," Larry challenged, coming up from the back bench. "You don't sound convinced. Why that diagnosis was as easy as hitting the side of a barn with a bucketful of beans."

Pop grunted and walked back to the office.

And they saw nothing more of Jan Jinger—nothing more, that is, until early the next morning. By that time the old man was in pretty bad shape.

"I can hardly walk this morning," he complained when Pop met him at the front apron. "And this blamed car is the cause of it. You guys are just as bad as the doc. He wants to make tests and says it will be several days before he can diagnose my leg trouble. But I know right well its radio burns."

"Sorry to hear that your pains are worse, Jan," Pop said. "And I'm equally sorry that we didn't get the gallop out of your Chevrolet. I will personally supervise the next hour's activity in this shop. And I'll bet you a pile of uranium 238 feet high that it will be fixed this time."

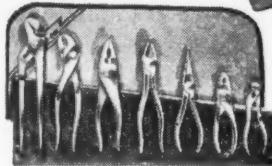
"Well, I hope I live to drive this car. I'm afraid this might turn into something dreadful. Why the things I've read about this radio active stuff. I've got to go for an X ray now, but I'll be back tonight, and you better have that hot stuff out of my car." Jan limped toward the streetcar stop, and Pop headed

(Continued on page 92)

Give your men *Snap-on Tools*



**the man's gift
that
builds good will!**



STANDARD PLIER SET — PL-70-K

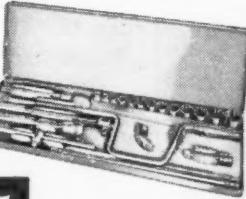
Seven fine Snap-on Vacuum-Grip Pliers that will handle every gripping, twisting, cutting, plier job in the shop. This set in durable kit bag makes a grand gift any mechanic will prize.



TORQOMETERS—Model TQ-150 shown—capacity zero to 150 foot-pounds—handles most jobs in the shop. Here's a tool every mechanic should own. When you eliminate mechanical distortion you safeguard your work. Other models up to 2,000 foot-pounds.

FERRET SET — 221-F-B

Saves time in the tight places! This popular 21-piece set of slim, sturdy wrenches includes 13 sockets, sliding bar, ratchet, nut spinner, speeder, universal joint and 3 extensions. This set handles the majority of nut turning jobs. Comes in special metal box.



Gift Certificate

Knowing that you like good tools, but might prefer to make your own selection, here is a gift certificate for **Snap-on Tools**. Just hand this to your Snap-on man and pick out your tools.

SNAP-ON GIFT CERTIFICATES

—let the recipients choose their own set Snap-on Tools. Your Snap-on man will make them out in whatever denominations you wish.

Your thoughtfulness in giving Snap-on Tools will be remembered long after many a more costly, short-lived gift would have been forgotten. They'll remind the men in your shop who receive them, time after time, that you valued their loyalty and respected their skill so much that you gave them the best. Could any present do more?

Snap-on Tools *build good will*. And it's so easy to make just the right choice, too. The Snap-on man who serves your shop knows mighty well (or can find out fast) exactly what tools each mechanic has had his eye on! Or—to show complete regard for a mechanic's personal preference—there's the Snap-on Gift Certificate, in any amount you wish.

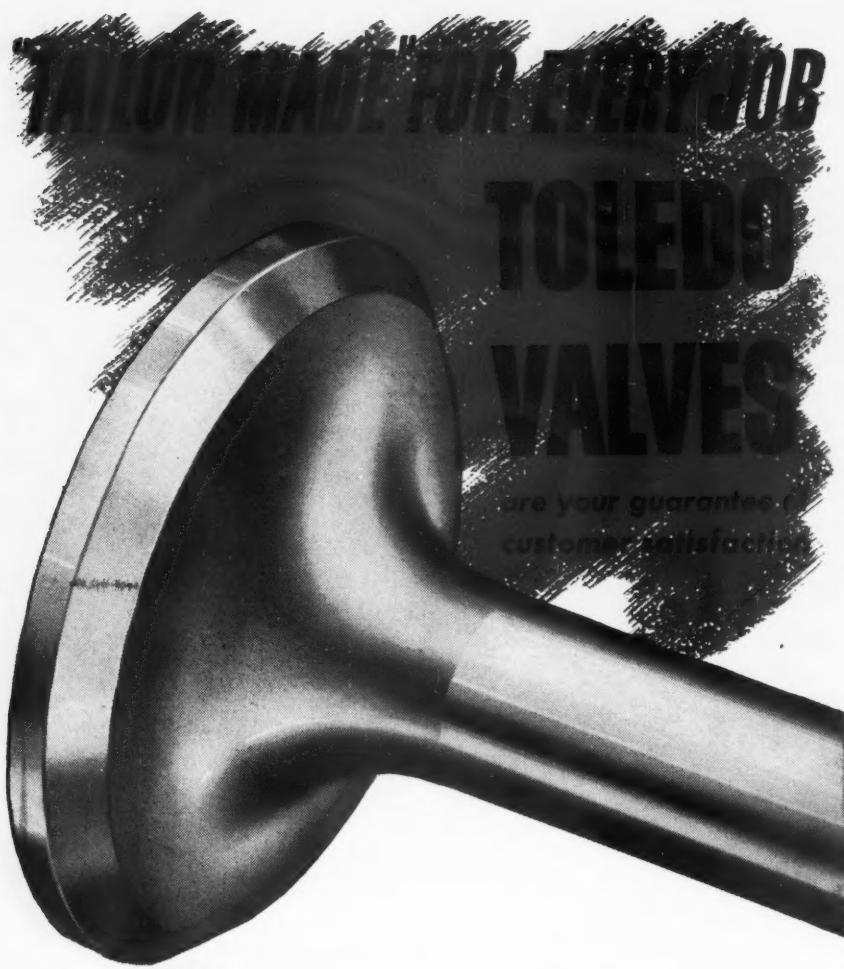
Time's getting short, though. Why not take care of the matter NOW? Just buttonhole your Snap-on man.



SNAP-ON TOOLS CORPORATION

8036-K 28th Avenue, Kenosha, Wisconsin

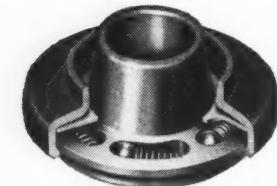
*Snap-on is the trademark of Snap-on Tools Corporation



Widest valve coverage in the business with your choice of the valve to fit the job!

For every job that comes into your shop there's a Toledo Valve "tailor-made" to give the utmost in efficiency and durability. *Toledo Super-forged Valves*—the standard for long wear at minimum cost—will answer the bulk of your needs. *Toledo Aerotype Valves*—for the most rugged heavy duty. *Toledo Sodium-cooled Valves*—specially designed for fast heat dissipation, the coolest running, longest-lasting valve made.

Take advantage of Toledo's 47 years of leadership—install Toledo "tailor-made" valves for greater customer satisfaction.



Get up to 5 times longer service with valve rotation!

Valve rotation is a thoroughly proven means to longer valve life. Toledo's coverage in both positive rotation (Rotocaps) and non-positive rotation (Roto-valves) gives you maximum sales opportunities.



Pop O'Neill . . .

Continued from Page 90

for the Chevrolet.

"Take off that distributor, Tommy. I want to see it on the tester."

"But it checked out OK on the analyzer," Tommy complained. "I think we need a smaller carburetor jet."

"And bring the flat rate and service manual while you're down there. Might not hurt any of us to have one of those things around when we get into these problem engines."

"Are you stuck this time, Pop?" Larry teased.

"Nope, it's just lopé," Pop chuckled. "I know what's wrong now, but I want you fellows to see what's wrong with it on the distributor tester."

He turned the rpm up to 2000 and checked the vacuum advance against the specifications. "See that? We've got too much advance for this engine," he explained.

"It's uncanny," Tommy mused, "the way you pick up these things. How did you know that, Pop?"

"I read it on the tester. You've got 20 degrees advance. Should have 15. And there's only one thing could cause that—the connector link on the vacuum control. Now this one," he continued, examining the linkage, "is a 774."

"How do you know that?" Larry questioned, a little bit miffed at being out-maneuvered so easily.

"Now that was a stickler," Pop laughed. "I read it stamped on the linkage." He picked up a cotter key from the tool box. "And since we don't have the other type linkage in stock, we'll just twist this $\frac{1}{8}$ in. cotter pin into the slot in this one like this, and limit the travel and the advance to 15 degrees."

Larry looked surprised, but Tommy was flabbergasted, and Pop knew it. "Frankly, men, I had heard of this trouble before. Read it, in fact, in MOTOR AGE. I doubted that you would have caught it, but then dammit, men, you ought to read those Service Suggestions. They'll save you some time and a lot of embarrassment."

"And that's the story, Jan," Pop

said as he turned the keys over to the owner.

"I don't believe it yet. Let's take a ride and see. Now wait till I get my game legs into that front seat."

"Well, what do you know?" the old man marveled after the first three blocks. "Then this car wasn't 'hot' after all?"

"It certainly wasn't, but I was when I found the boys had missed the trouble. Whatever gave you the idea that your car was radio active, Jan?" Pop queried as he stopped the car to let the driver take over.

For answer Jan took a yellow card out of the glove compartment. It read, **WARNING. THIS CAR HAS RADIO ACTIVE TRACERS IN THE LUBRICATING OIL. OVER EXPOSURE DANGEROUS.**

Pop read it, and turned it over, "But look on the back, Jan. You've been parking in the wrong hole over there at the Research Center, and someone has penciled a note to you on this old placard. It says here, 'Please use the proper parking lot at the end of the drive. You've taken the president's stall, and he's madder'n a wet hornet.'"

Next day, needless to say, Jan canceled his appointment at the hospital. "It was probably just from my teeth," he told Pop later. "I get it every year when the weather changes. Nothing at all . . . nothing at all."

Buick Hardtop Convertible Output Totals 35 Per Cent

Buick Motor Division will build more than twice as many hardtop convertibles in 1953 as in any previous year, Ivan L. Wiles, general manager of Buick, reported. Nearly 35 per cent of Buick's total output during the first eight months of the year was devoted to hardtops, an increase of nine per cent over last year.

Buick leads the industry in the production of hardtop models, a type of styling it introduced in 1949. Since that time, Buick has built nearly 400,000 hardtop Rivieras. The entire industry has built about two million hardtops.

During the first eight months of this year Buick has built 73,889 four-door sedans and 73,478 in the Super Series.

KEEP VEHICLES ROLLING TOLEDO MOTOR AND CHASSIS PARTS



REPAIRMAN

Toledo parts save installation time because they fit better. They give a better-running, longer-lasting repair job. These benefits mean greater customer satisfaction.



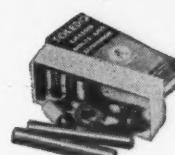
FLEET OWNER

Toledo heavy duty parts give me a better performance picture. Toledo parts wear longer, cut maintenance costs, keep vehicles rolling with less time out for repairs.



TRACTOR OPERATOR

Toledo heavy duty parts are always dependable, longer-lasting. They are first choice with me because they help keep down operating costs.



Toledo motor and chassis parts will be first choice with you too, once you have experienced their all-round superiority. Investigate the advantages of the complete Toledo line. See your Toledo jobber today, or write





**SPEED WORK WITH THE
WORLD'S MOST DEPENDABLE
AUTOMOTIVE TOOLS.
CALL YOUR SKIL JOBBER TODAY
FOR COMPLETE INFORMATION**

SKIL
PORTABLE TOOLS

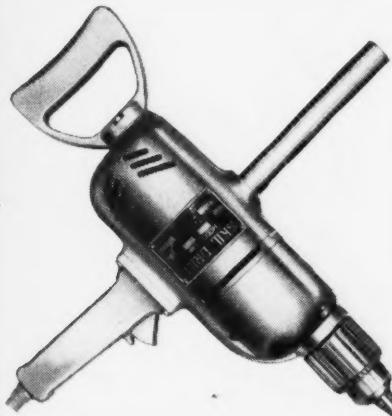
Made only by SKIL Corporation
formerly SKILSAW, Inc.
5033 Elston Avenue, Chicago 30, Illinois
3601 Dundas Street West, Toronto 9, Ontario
Factory Branches in All Leading Cities

"This SKIL Drill works like new after 7 years' abuse!"

says Frank Wentz, service manager,
Twin-States Equipment Co., Inc., Charlotte, North Carolina

"And I mean abuse," says Frank Wentz. "We specialize in equipping trucks with ready-mix concrete units, rebuilding truck frames to carry over-weight loads, installing such things as lifts, hoists and winches. Man, that's tough work for *any* tool! After seven years this SKIL Drill still gives top performance," he continues, "and it's *never* required service."

N. L. Plowman, mechanic, uses a heavy duty $\frac{3}{8}$ " SKIL Drill to drill through a hold-down bracket and truck frame during installation of a ready-mix concrete unit. "There's amazing reserve power in this great drill," he states, "even with the pressure handle and all my weight behind the SKIL Drill I can't begin to stall it."



SKIL Drill Model 2103

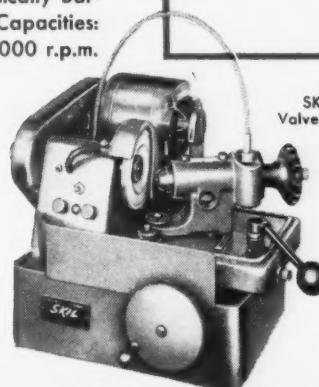
Heavy duty $\frac{3}{8}$ " drill. Capacity in steel: $\frac{1}{8}$ " to $\frac{3}{8}$ ". Capacity in hardwood: $\frac{1}{8}$ " to $1\frac{1}{2}$ ". No-load speed: 450 r.p.m. 1000 r.p.m. at extra cost. Bearings: Ball bearings on armature shaft; needle roller bearings on intermediate shafts; ball bearings on chuck spindle. Length overall: $16\frac{1}{8}$ ". Net weight: $14\frac{1}{4}$ lbs.

26 SKIL Drill models have these features

Modern, Compact Design • Helical Gears • Die-Cast Aluminum Housings • Oversize Brushes • Reserve Power • Statically and Dynamically Balanced Motors • Optional speeds available on many models. Capacities: $\frac{1}{4}$ " to 1" in steel; 2" in hardwood • Speeds: 200 r.p.m. to 5000 r.p.m.



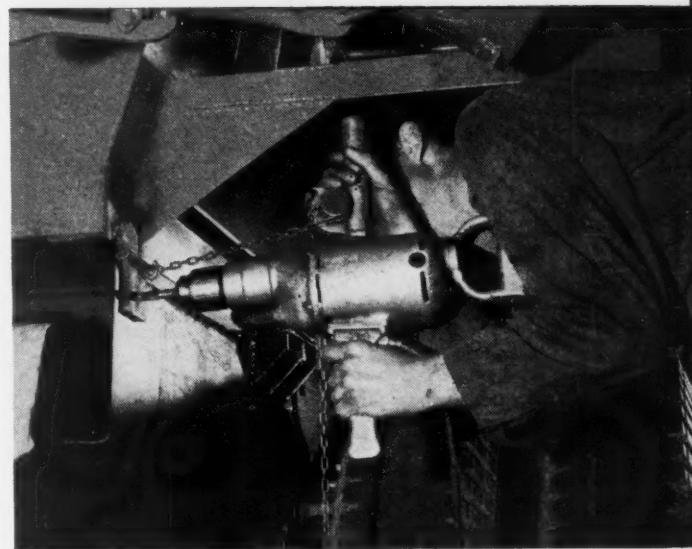
SKIL Disc Sander



SKIL Valve Shop



SKIL Valve Seat Grinder



Helical-cut gearing, ball and needle roller bearing construction insure uniform performance, quieter operation and longer life.

Ball Joint Continued from Page 49

to pull the ball joint stud out of the spindle boss, the stud can be loosened by hammering against this boss, using a brass bar to avoid damage. After the stud has popped loose against its nut, place a jack under the outer end of the lower arm and raise it until the upper arm rebound bumper is clear of the frame. The nut can

then be removed and the spindle and brake assembly can be lifted off the ball joint stud. Lower the jack until the coil spring is free and can be removed. Remove the two bolts that secure the lower suspension arm to the frame. Remove the lower suspension arm.

Examine the bushings on the inner end of each suspension arm

and replace if necessary.

To replace the bushing, position the flange of the inner bushing in special tool; place the other special tool over the bushing. Press the bushing from the arm. To install new bushings, center the bushing in the hole and place the bushing flange on special tools in reverse order of removing. Press the bushing into place until the shoulder ribs of the bushing bottom on the suspension arm. The bushing must not be pressed past this point, as distortion will result and affect the operation of the suspension unit. Bushings should always be replaced in pairs.

To install the lower suspension arm, secure the rearward leg of the suspension arm to the frame crossmember tube, running the nut up finger tight. With the arm forced firmly against the rear crossmember tube, install enough shims to fill the space between the forward arm leg bushing and the front crossmember; put the bolt, washers and run the nut on finger tight. With the arm in curb load position (approximately horizontal, with the outer end slightly lower than the inner) torque nuts to 80-100 ft. lbs. Place the coil spring with the rubber insulators in position on the lower suspension arm and, with a jack under the lower arm, compress the coil spring. Care must be taken to see that both the upper and the lower ends of the spring are properly seated and that the rubber insulators are in place. Guide the spindle boss over the ball joint stud. Install the nut and torque to 100 lbs. ft. Continue to tighten until the cotter pin holes line up.

Removing and Installing the Upper Control Arm—Adjustments. To adjust caster, loosen the two bolts that secure the upper suspension arm shaft to the frame and insert shims between the shaft and frame. One sixteenth inch of shim at the front bolt will add a negative caster of $\frac{1}{2}$ degree. The correct caster should be 0 to $1\frac{1}{2}$ degrees. The caster must be held within $\frac{1}{2}$ degree one side to the other on any vehicle.

Camber. Insert or remove the shims from between the shaft and

(Continued on page 98)

- Made by mechanics—
for mechanics
- Snappy, streamlined
appearance
- Shop data chart; job card clips
- Drawers flock-lined for
protection
- Man size handles; built-in locks

Seven of the eleven drawers are lined to take good care of your precision gauges and tools. Note the special drawer to handle your quarter inch hand drill . . . and the handy Tote Tray. A Huot Chest is a professional-looking job all the way through . . . and built to stand up under heavy abuse. Bright plated hardware . . . 2-tone hammerlin baked enamel finish . . . oil and grease resistant—just wipe it off to keep it clean. $18\frac{3}{4} \times 26 \times 12$ ".

For easy movability, it fits nicely atop a Model 250 Porta-Cab. Ask your jobber or write for bulletin on Huot Tool Chests and Cabinets.

HUOT MFG. CO.

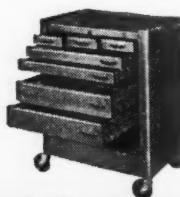
585 N. Wheeler Avenue
Saint Paul 4, Minnesota



Model 101 Chest



301 Tote Tray



250 Porta-Cab

Ask Your Jobber, or Send Coupon

HUOT MANUFACTURING COMPANY
585 N. WHEELER AVE. • ST. PAUL 4, MINNESOTA

Please send free bulletin on Tool Chests and Cabinets

NAME _____

ADDRESS _____

Name and Address of
your Favorite Jobber.....

MONTH	April	May	June	July	Aug.	Sept.
NO. CARBON BLAST TUNE-UPS	151	129	116	120	124	148
NET PROFIT	\$528 ⁵⁰	\$451 ⁰⁰	\$406 ⁰⁰	\$420 ⁰⁰	\$434 ⁵⁰	\$518 ⁰⁰

\$2758⁰⁰ Net in 6 Months

FROM CARBON BLAST TUNE-UP SERVICE!



Gene Brackman
Brackman & Company
Chicago Heights, Ill.

"That's right! In just six months we've made a NET profit of \$2,758 from our Carbon Blast Tune-up Service! And, what's more, our Carbon Blaster paid for itself the first two weeks we had it in operation!"

Those are the words of Gene Brackman of Brackman and Company, Chicago Heights leading independent service repair shop for almost twenty-five years. Gene is "100% sold" on his "Head-On" Carbon Blaster and he says . . . But wait, let him tell you himself . . . "No doubt about it, Carbon Blast Tune-up Service really pays off! . . . and in more ways than

one. Not only is the service itself a big money-maker, but it also leads to additional parts and labor sales. We carbon blast a man's car and he's so pleased with the big improvement it makes that many times he asks us to give the car a complete check-up. As a result, we've relined brakes, aligned wheels, replaced plugs, carburetors and fuel pumps . . . and that's all profitable business we might never have had otherwise.

"Then, too, there's the repeat business angle and believe me, our Carbon Blast Tune-up is the best 'bring-'em-back' service we have to offer. People for miles around bring their cars back to us. And get this! . . . many of them have actually thanked us for selling them a Carbon Blast Tune-up! In this business that's really something!"

KENT-MOORE ORGANIZATION, INC.

5-105 GENERAL MOTORS BUILDING • DETROIT 2, MICHIGAN



Engineers and Manufacturers of Special
Automotive Service Tools and Equipment

KENT-MOORE ORGANIZATION, INC.

5-105 General Motors Building • Detroit 2, Michigan

Now available to all "Head-On" Carbon Blaster owners . . . a complete promotional program designed to help you sell Carbon Blast Tune-up. Send for your "Profits" Plan Book today.

Name _____

Company _____

City _____ Zone _____

State _____

Repaint Jobs

Continued from Page 50

a lot of time. When they find out that, with modern spray booths and drying ovens, the car can be returned the next day (and sometimes even on the same day), they realize that having their car painted will not be an inconvenience. (7) Eyebrows often raise when the subject of price is brought up. Refinishing prices have not soared as have other

prices which have risen sky-high due to inflation. Customers often think that a sixty or seventy-five dollar paint job must be a bargain price and therefore inferior in quality. They can be shown where modern refinishing equipment and materials have helped to reduce costs and improved quality to a point where a top quality repaint

job can be offered at a price which seems unreasonably low by present-day standards.

Two-toning is probably the easiest paint job to sell, since many of the cars which now need paint were originally finished in one color. Many of these readily lend themselves to two-toning due to a convenient belt molding around the car. It's a good idea to have a selection of factory recommended color combinations for the customer to look over. The color chip is an excellent sales tool.

When guiding the customer in his choice of colors, here's a point worth mentioning. An organization known as Motor Vehicle Research has announced the results of experiments which show that cars painted with the lighter shade on top will be more comfortable in hot weather than those which are dark on top. The light color reflects the rays of the sun and helps to keep the interior cool. The dark colors, on the other hand, absorb and hold the heat, actually passing it into the interior and making the inside of the car considerably warmer.

Advertising and selling will help to increase refinishing work, but the body shop's best "weapon" is a job well done. The Satisfied Customer is a body shop's top salesman.

**A "DOUBLE FEATURE"
YOU CAN'T
AFFORD TO MISS**



**HYPRESSURE
Jenny
Combination
Steam Cleaner and
Cooling System Flusher**

**• A STEAM CLEANER and
• A REVERSE FLUSHING AUTOMOTIVE
COOLING SYSTEM CLEANER**

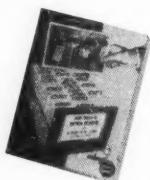
Steam Cleaning under car raised on HOMESTEAD HOISTER, the One End Lift that saves 25% to 50% of mechanics' time on "low down" repair or service jobs.

... in one portable unit. And for little more than you'd pay for the steam cleaner alone.

In Combination Hypressure Jenny you get the world's first, best and simplest steam cleaner —the steam cleaner that's ready to start cleaning in 90 seconds from a cold start—plus built in Steam Thoro-Purge, the most efficient automotive cooling system flusher ever devised—the only one in the world that employs hot water... chemical action... air pressure... and sudden but safe temperature changes to remove scale and sludge from radiators and engine blocks.

Hypressure Jenny Steam Cleaner will not only save you countless hours of hard labor and expense fighting dirt and grease, but start earning for you in extra customer services the day you put it on your floor. And Steam Thoro-Purge can easily bring you up to 20% more business a year on cooling system cleaning alone.

Combination Hypressure Jenny and Steam Thoro-Purge is a double feature you can't afford to miss. Write Today for complete information and your copy of "1001 WAYS TO EXTRA PROFITS WITH HYPRESSURE JENNY STEAM CLEANER". It's FREE.



HYPRESSURE JENNY DIVISION

Homestead Valve Manufacturing Company

"Serving Since 1892"

P. O. Box 95

Coraopolis, Pa.

Ball Joint . . .

Continued from Page 96

the frame at both the front and rear bolts. Each 1/16 inch shim added will give 1/4 degree of negative camber. Correct camber is 0 to +3/4 degrees. Camber on both sides should be held within 1/4 degrees of each other.

Toe In. Adjust sleeves on the rods.

Theoretical King Pin Inclination

King pin inclination is non-adjustable. No adjustment is provided and, unless related parts are bent, the angle will be 7 degrees when the camber angle is +3/4 degrees.

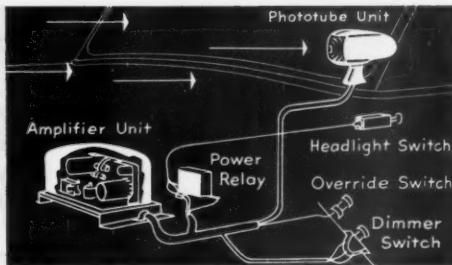
Illustrations courtesy of Thompson Products, Inc., and Lincoln-Mercury Division of the Ford Motor Company.

When
a Lady
Meets a
Gentleman . . .

Courtesy
is
Automatic

with the

AUTRONIC-EYE®



Your headlight manners are always *perfect* on the highway after dark! Guide's amazing new Autronic-Eye picks up the beams of approaching vehicles . . . flashes message to electronic "brain" under the hood . . . and your lights are dimmed until all oncoming traffic has passed. Then back to bright—all *automatically!* With this automatic headlight control there's no footwork . . . no guess-work . . . no danger of waiting too long to lower your beams! Your Cadillac, Oldsmobile, Pontiac or Chevrolet dealer will gladly give you an Autronic-Eye demonstration.

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GUIDE LAMP DIVISION • GENERAL MOTORS CORPORATION • ANDERSON, INDIANA



Don't "Booby Trap"

for safety's sake
repair brake systems with genuine

WAGNER LOCKHEED HYDRAULIC BRAKE PARTS



You can depend upon
WAGNER QUALITY because
Wagner Products are used as
original equipment by automobile,
truck, and trailer manufacturers.

H53-3E

LOCKHEED HYDRAULIC BRAKE PARTS and FLUID • NoRoL • CoMaX BRAKE LINING • AIR BRAKES

Your Customers' Cars



Sudden, nightmarish tragedy is forever in the offing when you repair a customer's brake system with an unproven brand of brake parts. The toll of injury, death, property loss, and damage suits could ruin your reputation or even undermine your business.

Eliminate that threat by standardizing on Wagner Lockheed Hydraulic Brake Parts for your replacement needs. This complete line of repair and replacement brake cylinders, cups, boots, pistons, springs, hose, and washers is manufactured to the same specifications as parts used in complete assemblies for original equipment. This assures perfect fit . . . quick, easy replacement . . . maximum service life.

You'll find that the Wagner Lockheed line of brake parts is the most complete on the market, and includes hard-to-find numbers, not easily obtainable elsewhere. Every make and model of vehicle is covered. No other line offers such a complete selection available from a single source.

See your nearest Wagner jobber, or write us for further information on Wagner's *complete* brake service line.

Wagner Electric Corporation

6498 PLYMOUTH AVE., ST. LOUIS 14, MO., U. S. A.
(BRANCHES IN PRINCIPAL CITIES IN U. S. AND IN CANADA)

DO YOU KNOW?

... that brake fluid is the only source of lubrication for the moving parts in the hydraulic brake system. It should absorb small amounts of water without stratification (separation of ingredients). Lubricating ingredients naturally oppose water. The fluid should be chemically balanced so that lubricating requirements are not sacrificed for an unnecessary excess of water absorbing capacity.



Wagner®

...the best known name in brake service

TACHOGRAPH • ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL CRANE BRIDGE BRAKES

moving the lever to the extreme right or left, respectively. Reverse and Low are engaged by moving the selector lever up toward the steering wheel and then moving the lever to the left or right extremes, respectively.

No "Parking" position is necessary on De Sotos equipped with PowerFlite transmission since these

cars have a hand brake of the internal-expanding type.

This brake, which is independent of the regular hydraulic brakes, operated through the drive train and is capable of holding a car parked under any circumstances. This brake, which also may be used as an emergency brake, makes it unnecessary to have a parking

sprag within the transmission.

The shift from starting gear to direct drive takes place between 15 and 65 miles per hour, depending on the degree of acceleration pressure. If additional acceleration is desired after the transmission is in direct drive, the driver may "kick down" to low gear by depressing the accelerator pedal all the way to the floor board. PowerFlite also automatically downshifts anytime car speed falls below 11 miles per hour.

PowerFlite is available as optional equipment on all models of both the Fire Dome V-8 and Powermaster Six series of 1954 De Soto automobiles.

*The Most Satisfactory
IGNITION CONTACT
Ever Designed!*



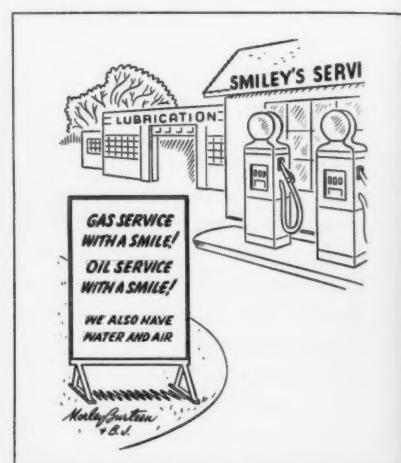
**ALL THESE ECHLIN EXTRAS
EXCLUSIVE IN THE
ECHLIN LINE**

- COPPER CONDUCTOR STRIP
- STAINLESS STEEL FLOATING SPRING
- NON-SLIP BUSHING
- OVER 50% MORE CONTACT AREA
- FOR ALL 3 IGNITION SYSTEMS

ECHLIN
Ignition

CONTACTS
COILS - CONDENSERS
& OTHER AUTOMOTIVE
ELECTRICAL PARTS

ECHLIN MANUFACTURING COMPANY Dept. MA, 220 EAST ST., NEW HAVEN 5, CONN.



Market in Oil Filter Sales Hits 60 Million Potential

Since more than 30 million vehicles are now equipped with oil filters, the potential filter element business is a big one. On the basis of two changes a year, this means the sale of 60 million elements annually. These facts were disclosed by John C. Hines, general sales manager, AC Spark Plug Division of General Motors.

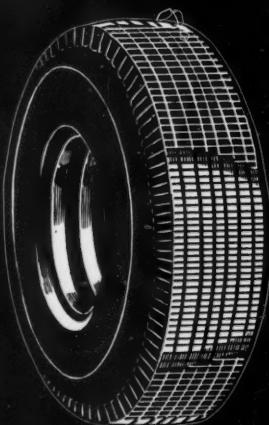
Most car manufacturers recommend changing the oil filter element every 5,000 miles. Buick recommends replacing the oil filter element every 5,000 miles. Ford every 5,000 miles. Chrysler every 5,000 miles. Lincoln and Mercury both recommend a 4,000-mile change period. Cadillac and Oldsmobile 6,000 miles.

Because of the importance of changing the element at a specified mileage, practically all other car manufacturers make similar recommendations in their manuals.

New PROFITS FOR
YOU THIS WINTER...
John BEAN **PECO**

SKID-DEFIER*

CUTS SNOW AND MUD
CLEATS AS WELL AS
DE-SKIDDING BOTH
NEW AND OLD TIRES

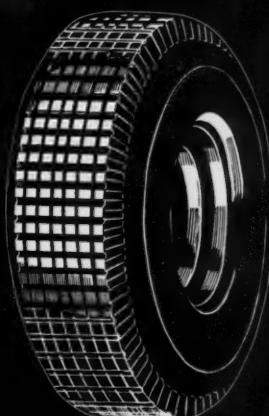


◀ **REGULAR DE-SKIDDING**

Gives 25% more traction on icy roads,
increases tire life 15% — ALL your
trade will want de-skidded tires.

MUD AND SNOW CLEATS ▶

Make snow tires from present tires on
the Skid-Defier — then sell a set of
new skid-defied tires in the spring.



Tire de-skidding is a year-round profit
builder—get details from your Jobber today.

JOHN BEAN DIVISION
FOOD MACHINERY AND CHEMICAL CORPORATION
LANSING 4, MICHIGAN

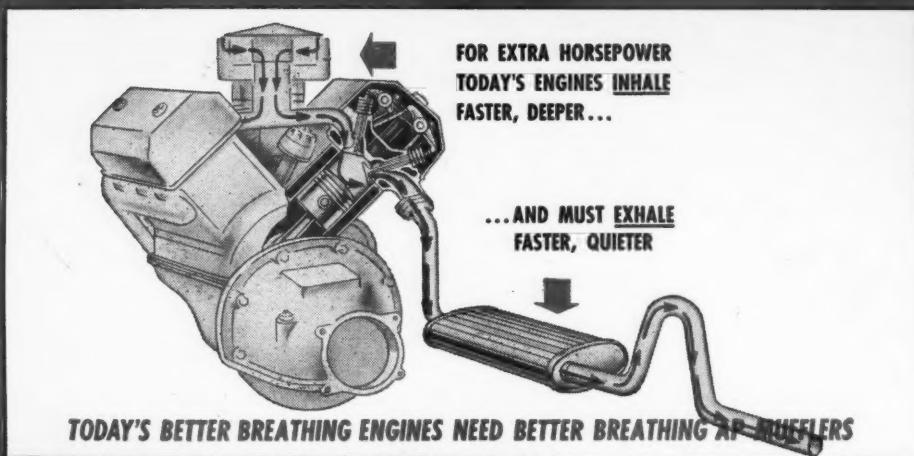


WHEEL ALIGNERS AND CORRECTION TOOLS • WHEEL BALANCERS AND BALANCING
TOOLS • WEIGHTS • STEAM CLEANERS • CAR WASHERS • HEADLIGHT TESTERS

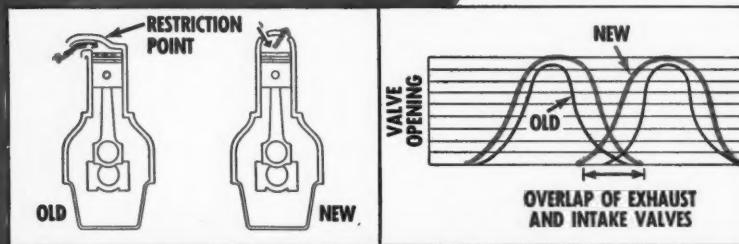
*TRADE MARK

The Secret of Today's HP is Better

Don't Strangle Them—Insist On AP Better

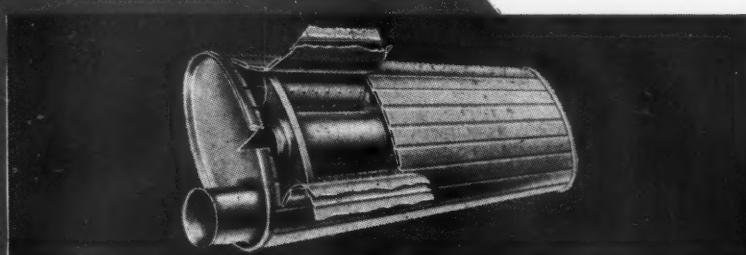


TODAY'S BETTER BREATHING ENGINES NEED BETTER BREATHING AP MUFFLERS



New engines breathe deeper because bores are bigger and because overhead valves remove restrictions of L-type heads, permit both incoming mixture and exhaust to travel faster.

Exhaust and intake valves are open longer at the same time, thus causing tremendous "run-down" noises creating new muffling problems—which have been solved by AP engineers.



Now exhaust problems of today's better breathing engines are solved by better breathing AP Mufflers. "Fenced-in" silencing (use of air spaces between shells) absorbs new shell sounds; noises caused by bigger exhaust valves are quieted by more high frequency tuning; sounds due to longer opening overlap between intake and exhaust valves are silenced by improved low frequency chambers.

More *horse power*

More *sales power*

with **AP**

Breathing Engines!

Breathing Mufflers

Power in today's engines has been increased principally by using a larger air-gas mixture—in other words, by deeper breathing.

But this creates new problems of exhaling or exhausting. The larger amount of faster moving gas bangs into the muffler with a loud rap. At the same time, bigger exhaust valves open with a boom. Finally, a longer overlap between the opening of intake and closing of exhaust valves adds more noise.

But AP engineers, working in cooperation with car factories, have the answer—a better breathing muffler which exhausts the increased air-gas mixture faster, quietly and with less back pressure.

Shell noises are reduced by "fenced-in" silencing—ribbed shells which create sound deadening air spaces between shells. "Boom" due to bigger exhaust valves is quieted by short chambers between an inner and intermediate shell. Sounds due to longer valve overlap are silenced by larger, better positioned low frequency chambers.

Today's better breathing engines need these better breathing AP Mufflers. Contact your AP jobber now.

THE AP PARTS CORPORATION
1582 AP Building • Toledo 1, Ohio
Manufacturers of: MUFFLERS • PIPES • MIRACLE POWER • dgl 123



Mileage-saving
MUFFLERS

NADA DOINGS

Cabinet Members to Address Convention

Postmaster General Arthur E. Summerfield and Secretary of the Interior Douglas McKay will be principal speakers at the 37th Annual Convention of the National Automobile Dealers Association, Miami Beach, Fla., Jan. 9-13, 1954.



Summerfield



McKay

Both of these men, prominent in public life as members of President Eisenhower's Cabinet, have had broad and extensive experience in automobile retailing. In private life, Mr. Summerfield owns the Summerfield Chevrolet Co., one of the largest dealerships in the nation, with headquarters in Flint, Mich. Secretary McKay owns a Chevrolet-Cadillac dealership which was organized in Salem, Ore., in 1927.

The program being lined up for the convention promises to be one of the most outstanding in the association's history. Problems dealers face will be thoroughly explored

by some of the nation's most outstanding personalities.

Clinic sessions will deal with critical problems in sales, business management and employer-employee relations.

Employer-Employee Clinic on Agenda

"Your Investment in Flesh and Blood" will be the theme of NADA's Employer-Employee Relations Clinic, tentatively scheduled for Jan. 13, Alton M. Costley, convention chairman, reported.

George M. Berry, NADA EER committee chairman and a St. Louis Packard dealer, will be moderator of the clinic. Arthur Haas, a Chevrolet dealer in Cleveland, will speak on "Getting Your House in Order." Frank Collard, a Waterloo, Iowa, Dodge-Plymouth dealer and a NADA regional vice-president, will discuss various methods of compensating salesmen.

Bell Confers With Factory Management

Frederick J. Bell, NADA executive vice-president, representing the nation's new car and new truck dealers, discussed dealer problems with top management of General Motors, Ford, Chrysler, Nash and Packard.

Factory top management expressed universal opposition to misleading advertising and in those cases where effective action has not been taken to put a stop to these practices such action was promised.

There was unanimity with regard to high pressure methods that force a dealer to take more new cars than experience shows he can handle effectively. Factory officials informed Bell that they'd like to know wherever and whenever high pressure methods are used in the field—with all pertinent facts in the case.

Check Connections for Leaks If Raw Gas Fumes Enter Car

Some cases have been found where raw gasoline fumes enter the car to an objectionable extent when driving on Pontiacs. This condition is at its worst when the car is driven with all windows and outside air inlets closed, but with the

front door ventilators opened slightly. While driving under these conditions there is a partial vacuum (relatively low pressure) inside the body; consequently, outside air and fumes will be drawn into the body through any unsealed openings.

All gasoline lines and connections should be checked for evidence of

leaks with the engine running. After these causes have definitely been eliminated, check the exterior of the tank for evidence of raw gasoline odors either from a loose connection or loose fuel tank gage and correct if necessary. The gasoline tank is ventilated through the filler neck cap. The tubular cover that protects the filler neck, therefore, must be properly sealed to the body or there is a possibility that fumes from the cap may be drawn into the body at this location. Check areas on tube from end to end for evidence of dust or water leaks which would indicate improper sealing of tubular cover. Improper sealing at these points would allow raw gasoline fumes to be drawn into the car.

Tight Accelerator Causes Momentary Engine Race

If the accelerator of a 1953 Studebaker Commander model is too tight, the throttle valve will move open as the engine shifts slightly forward when the brakes are applied. This in turn brings on momentary engine race.

To eliminate further occurrence, loosen the upper lock nut and tighten the lower lock nut on the threaded rod of the carburetor throttle body to allow $\frac{1}{8}$ -in. to $\frac{3}{16}$ -in. sag in the throttle actuating spring.

Modifications to Improve Chevrolet Performance

To eliminate some reports of combustion chamber rattle and engine surge, the following changes have been made in ignition and carburetion in the 1953 passenger car engines.

The ignition timing has been changed from upper center to 2 deg. after upper center. In production timing is being set 7/32 inch after the timing ball until changes in location of ball in flywheel can be made.

If during a tune up, a check of timing shows ball between letters UC, the timing should be changed to 7/32 inch after the ball. If ball is observed to be after the letters

(Continued on page 114)

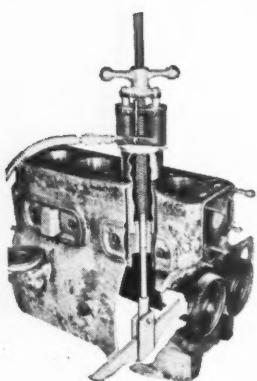
PULL AND INSTALL CYLINDER SLEEVES IN MINUTES



Removing Sleeve . . .
Note cylinder studs need not be removed.

HYDRAULIC SLEEVE PULLER

Now do four or five sleeve jobs in the time it took to do one—with the 17½ ton Hydraulic Sleeve Puller and Installer. You can install either wet or dry sleeves in minutes. Operates on over 350 makes and models of trucks, tractors, power units and buses. Fully adjustable to provide clearance regardless of number or position of cylinder head studs. Centers tool accurately over bore. Removes or installs sleeves from 3" to 9" without damage or distortion.



Installing Sleeve . . . Also can be done with studs in position.

Booklet describes complete line and uses of OTC equipment.



WRITE
FOR
FREE
BOOKLET

OWATONNA TOOL COMPANY
321 CEDAR STREET • OWATONNA, MINNESOTA

*the car
that does
the most
for them...*



*does the most
for him too!*

that's why it pays to travel

*with **MERCURY***

MERCURY



own communities to operate without hampering Code restrictions. Wherever action is required, it should be handled by concerted action through NADA on a national level, on a state level, and on a local level. AMA has complete documentation bearing on this matter and will be glad to provide the local organizations with this material.

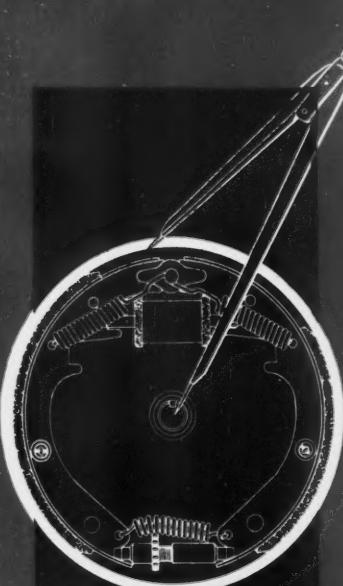
What is the position of the motor vehicle industry? Since air conditioning is an integral part of an automobile, it falls naturally within the regulatory authority now exercised by the state motor vehicle administrative authorities. It is a matter of public interest and safety much the same as are safety glass, brakes, lighting equipment, and

other parts and accessories.

What is the risk involved in the application of an existing City Code, such as the Detroit Ordinance before it was amended. The Detroit Code requires that a person, firm, partnership, association or corporation hold a refrigeration contractor's license before being permitted to install, alter, or service any refrigerating system in the City of Detroit.

If the Code were to be applied broadly to motor vehicles, it would cause unprecedented hardships to customers, to dealers, to automotive servicemen and to manufacturers making the installation. In the case of a dealer, for example, no mechanical work could be done on the engine except under supervision of a licensed contractor since it would involve operations requiring removal of the refrigeration compressor or disconnecting of lines carrying refrigerant.

The dealer would be obliged to employ a licensed refrigeration contractor for this purpose, regardless of the volume of air-conditioned cars in his establishment. It would



AMMCO SAFE-ARC BRAKE SHOE GRINDER

Model 2000

Grinds lining to fit arc of drum
Handles all shoes for drums 9" to 16½" in diameter
Produces precision arc on 8 shoes in 4 minutes
Abrasive sleeve is quickly replaceable
Built-in vacuum system prevents flying dust
Eliminates "wear in" periods and free adjustments



**PLAY SAFE WITH AMMCO
—THE BIG BUY!**

AMMCO TOOLS, INC.

2102 COMMONWEALTH AVENUE • NORTH CHICAGO, ILLINOIS

The best way to keep up with the Jones' is to take it easy for awhile and in a few years you'll meet them coming back.

involve an unnecessary and unbearable expense to the dealer and would shift an equally unbearable charge to the customer for even minor repairs and adjustments to the engine.

Motor car manufacturers, too, could be subjected to the same interpretation of the Code and would be obliged to have installations supervised by a licensed refrigeration contractor. Altogether it could become an untenable situation if steps were not taken immediately to correct it.

One of the most important provisions of the Code and one that aptly applies to motor car air conditioning is the definition of Group 1 refrigerants. Group 1 refrigerants are those that are non-toxic, and non-flammable, including many varieties of Freon as well as other accepted types, hence offer no hazards in the event of a leak or a break in the system in case of ac-

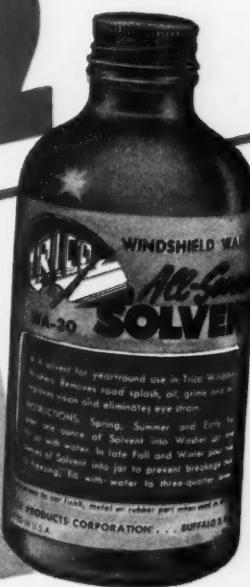
(Continued on page 113)

Winter-ize the Windshield too!

1

with
Trico's
NEW
Arctic Blade
(De-ices itself)

2



with
Solvent
for the
Washer

W

HEN a car owner asks for radiator anti-freeze, that's the psychological moment to suggest a new Trico Arctic Wiper Blade for his windshield — and Trico Solvent for his Washer.

Trico's new Arctic de-ices itself as it wipes. Can't snow clog. When road splash hits the 'shield in freezing temperature, nothing but a hooded Arctic Blade will take the driver through. Perfect performance — when it's snowing, when it's raining. Fits curved and flat windshields.

You'll make your customer — and your cash register — happy when you sell this safe-vision team.



Trico All-Season Windshield Washer Solvent helps the Two Little Squirts do a better job winter and summer. Helps to "cut" oily dirt and traffic film from the glass. Slows down freezing and prevents jar breakage.

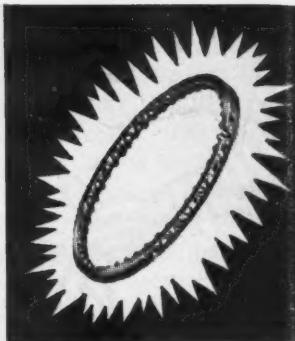
For a limited period, every carton of 24 bottles of Trico Solvent entitles you to this new E-Z Fill funnel for Washer refill, winter and summer. Ask your jobber.



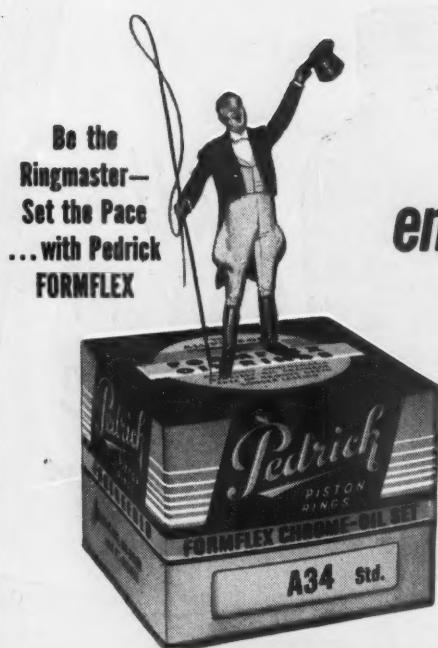
Windshield Equipment

Trico Products Corporation, Buffalo 3, N. Y.

Of course, Pedrick has Chrome



...but Pedrick—and only

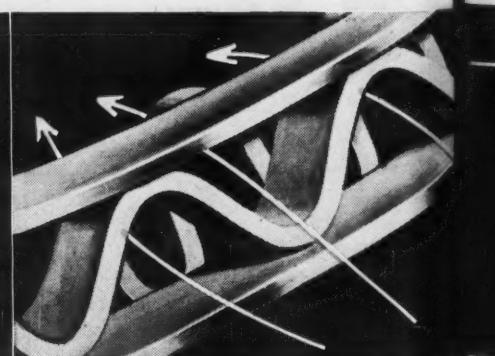
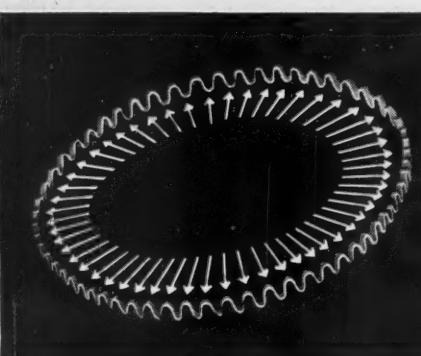
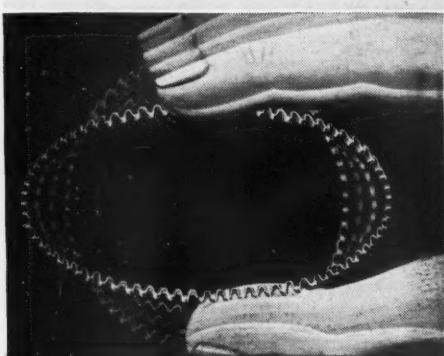


There's a "NEW ENGINE" in every box

It's the new, revolutionary engineering principle that sets

Pedrick *FORMFLEX* ahead of all other oil rings!

Chrome? Of course, Pedrick has *very good chrome*... and we claim no distinction in that. But PEDRICK FORMFLEX rings have the EQUALIZER—the sensational, yet amazingly simple principle that adapts FORMFLEX to practically all conditions of cylinder wear and distortion. It's an oil ring you can use, with a performance *guarantee*, in all kinds of engines regardless of taper, out-of-roundness or block distortion.



1 AMAZINGLY CONFORMABLE—

Made possible by a new type of expander—The Pedrick "Equalizer". Gives even contact with cylinder all around.

2 UNIFORM PRESSURE DISTRIBUTION—

The "Equalizer" gives equal outward pressure at all points, with less friction and far longer life.

3 ALMOST TRIPLE OIL DRAINAGE—

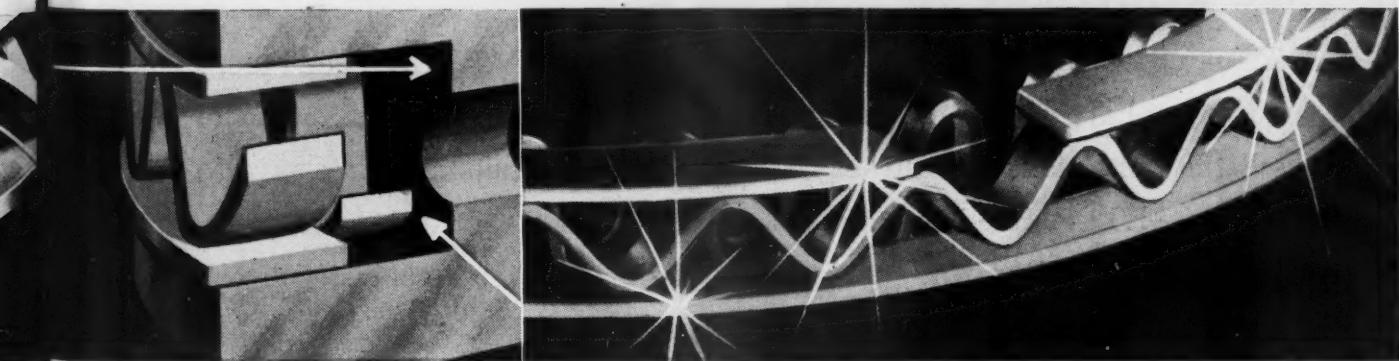
Because of $2\frac{1}{2}$ times more open area provided the "Equalizer" and spacer. Eliminates any chance of plugging.

Pedrick has the "EQUALIZER"

Guaranteed to
outperform in
any job . . .
Re-ring . . .
Re-bore . . .
Re-sleeve

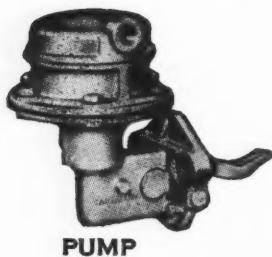
WILKENING MANUFACTURING CO.
PHILADELPHIA 42, PA.

In Canada: Wilkening Manufacturing Co. (Canada) Ltd., Toronto

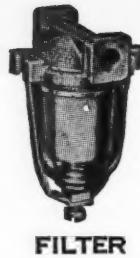


4 INDEPENDENT OF GROOVE DEPTH—
The "Equalizer" does not rely on contact
with bottom of piston groove for its pres-
sure or tension.

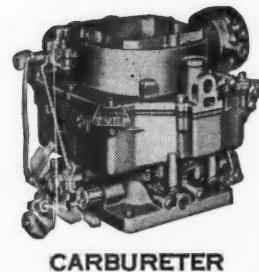
5 CHROME FOR LONG LIFE—The faces of the two steel rails
are chrome plated for two to four times longer life.



PUMP



this



CARBURETER

CARTER



FOR ADDED PROFITS...SELL THE COMPLETE FUEL SYSTEM

LIFELINE

Opens Up

NEW SALES OPPORTUNITIES FOR YOU

Think of the added selling opportunities you have when you stock and sell the complete, nationally advertised, CARTER Lifeline — famous CARTER Carburetors, unique CARTER Ceramic Fuel Filters, and

dependable CARTER Fuel Pumps — now being used more and more as original equipment. It's easy to set yourself up as "fuel system headquarters" in your area, just call your nearby CARTER supplier.

CARTER CARBURETOR
Division of American Car



CORPORATION, ST. LOUIS 7, MO.
and Foundry Company

Air Conditioning . . .

Continued from Page 108

cient. Without exception, the refrigerants used in motor car air conditioning units are of Group 1 type.

It is understood that no undue hazard exists with such refrigerants, even if a leak developed while a car was on the road, or while it was being repaired in a service station. Consequently, there is no added hazard from the standpoint of public safety.

All motor car manufacturers who supply air conditioning have instituted organized schools for training service personnel in the installation and repair of such equipment. Being in business for some 50 years, the motor car industry is secure in the conviction that it has developed the proper know-how for training its service mechanics to handle any special equipment that may be developed for motor cars. It has successfully overcome the problems of launching such intricate mechanisms as automatic transmissions and power steering and appears to be fully competent to handle air conditioning or anything else that may come into the picture.

Much happiness is overlooked because it doesn't cost anything.
Unknown.

Moreover, it is quite reasonable to expect that cooperating refrigeration contractors may find themselves in the motor car air conditioning business in the long run. Many service stations and dealer establishments today find it expedient and good business to refer radio repairs to a specialist outside their own shop. It is quite possible that at least the many smaller dealers and repair shops will find it desirable to refer air conditioning overhauls and repairs to competent refrigeration experts if their own operation does not warrant the know-how and equipment required to do the job.

In any event, car air conditioning appears to be a fast growing business and it is well for everyone concerned with selling cars and servicing them to make sure there are no road blocks in their various communities.

*The Smart Guys
will make money
this winter!*

Do you "fold up" just because there is snow, ice, and sleet?

Sure . . . a lot of your customers "fold up" . . . but a lot more will keep coming if you can show them how easy it is to "keep running."

BOWES COMBUSTION AID

will keep 'em running!



**THIS POSTER
and our National Advertising will
bring you added PROFITS**

Get this poster from your Bowes distributor, insert in your window and make money. A long list of magazines, including Collier's, Saturday Evening Post, Pathfinder, Farm Journal, Mechanix Illustrated, Popular Mechanics, and Popular Science, will carry advertisements in October, November, and December telling people to look to BOWES DEALERS for helpful *Combustion Aid*. Identify yourself with this advertising by displaying our poster in your windows and **MAKE ADDED PROFITS** this winter.

BOWES "SEAL FAST" CORPORATION, INDIANAPOLIS 7, INDIANA

BOWES
SEAL
FAST

UC, then time engine to the ball.

To overcome engine surge at 25-30 mph, part throttle on float or at 4-25 mph on an overrun which can be caused by too much vacuum advance and/or by a slightly lean carburetor the following changes were also incorporated.

The vacuum advance at part throttle was retarded slightly by a

change in the location of the spark advance holes in the carburetor. In addition the connector link on the vacuum spark control assembly was changed to incorporate a stop at 15 deg. instead of 20 deg. as formerly used.

In addition, identification of these links may be accomplished as follows: 15 deg. advance link

is stamped "845"; 20 deg. advance link is stamped "774." Carburetion was enriched slightly by the installation of 7005422 main well and power valve support assembly.

Take Precautionary Steps Before Adding Anti Freeze

Take a few precautionary steps before you service a car for cold weather driving, Du Pont Company car radiator experts advise. Modern high-compression engines are coupled with cooling systems that require more than customary care against inroads of rust and acid corrosion.

Today's radiator cores contain tubes or passages that are smaller in diameter and have thinner walls than those of a few years back to cool efficiently present-day hotter-running motors. Accordingly, these tubes are more easily clogged with rust and scale. Old anti-freeze left in the system eventually turns acid and can in

*Announcing! ... a new and better heavy duty welder and battery charger

THE

Mid-States
BULLDOG

For Production,
Maintenance
& Repair Work



Model 175-A.C. Arc Welder

Model 175-BC—Combination arc welder and battery charger. Shipped complete with accessories as illustrated. Size: 16" Wide, 13½" Deep, 20" High. Shipping Weight: 136 pounds.

Send Today for Free
Descriptive Literature

The Mid-States BULLDOG is aptly named. It's that tough! The new BULLDOG is a heavy duty model, designed, engineered and built to meet all repair, production and maintenance work. You, like thousands of other users, will find this combination welder and battery charger delivers unvarying, trouble-free performance. No moving parts, transformer carries 5 year burn-out guarantee. Equipped with dual voltage charger capable of charging either 6 or 12 volt batteries. Automatic tapering charge serves as safeguard against battery damage by gradually reducing amperage rate as battery reaches full charge. Furnished complete with helmet, welder cables, battery cables.

REA — Specifications — NEMA

Amp Range 15-175	Duty Cycle 50%	Max. Open Cir. Volts 65	Primary Amps 33	Power Factor 75%
---------------------	-------------------	-------------------------------	-----------------------	---------------------



Mid-States WELDER MFG. CO.

6025 SOUTH ASHLAND AVENUE • CHICAGO 36, ILLINOIS



"He's an inspector from the Bureau of Weights and Measures."

time eat pinholes in radiator passages. This can occur within a shorter period in late model cars.

It is wise, say authorities, to clean out the cooling system with a reliable cleansing agent. Otherwise, deposits will accumulate, slowing down circulation of the coolant, and ultimately lead to clogging and to motor overheating.

Before adding anti-freeze, pour in a sealer, even though the cooling system seems water-tight. Next, check hose and clamp, fan belt, thermostat, pressure radiator cap, heater and heater hose.



it's fast...easy...safe...

it's a
HEIN-WERNER
Bumper-Lift

Ring up big additional profits by selling Hein-Werner Bumper-Lift Jacks to your customers. It'll take but a minute to demonstrate the enormous superiority of a Bumper-Lift over the conventional jack furnished with a car.

The Bumper-Lift is fully hydraulic; has $1\frac{1}{2}$ ton load capacity; lifts to maximum height of 34". Exclusive "Knuckle-Joint Hook" securely grips the most streamlined bumper . . . raises car clear of floor with a few easy strokes of jack handle. Starting height is adjustable from $4\frac{1}{2}$ " to $15\frac{1}{4}$ ". Load is smoothly lowered by turning release valve. There's no need to crawl under car. Ideal for changing tires, installing chains, washing wheels, etc.

Stir up sales action NOW! Stock, display, demonstrate Hein-Werner Bumper-Lifts.

See your H-W jobber or write us for details.

HEIN-WERNER CORPORATION • Waukesha, Wisconsin

Hein-Werner
HYDRAULIC JACKS

The complete Hein-Werner line of hydraulic jacks includes: Under-Axle Jacks of $1\frac{1}{2}$ to 100 tons capacity . . . "Bumper-Lift" Jacks for passenger cars . . . "Swift-Lift" and Service Jacks for shop use . . . Adjustable Car Stands . . . "Push and Pull" and "Pushmaster" Jacks for body, fender, and frame repair work.

HEIN-WERNER MANUFACTURES AND SELLS MORE HYDRAULIC JACKS
THAN ANY OTHER COMPANY IN THE WORLD TODAY!



LEADING AUTOMOTIVE JOURNAL SAYS YOU CAN

"Double your Brake Business"

"It pays to 'Pull a Wheel.' Motorists want their brakes to be in good condition. The only way to be absolutely sure they are, is to pull the wheel and look. It will double your business."



Sell "Free" Brake Inspections

Leading automotive magazines strongly urge you to "pull the wheels" on the cars that come into your shop. Your salesmanship and your expert workmanship can save lives.



and you'll uncover Brake Reline Business that sells itself!

Ask your customers to see for themselves the condition and quality of their brake linings. They are quick to order you to replace dangerously worn lining. This selling strategy will not only build your brake business, it also helps you sell all your other services.

Play up to your expert brake work—a service your customers need and will buy!

Identify yourself with Johns-Manville advertising reaching motorists in your community—the most powerful advertising program in the brake lining industry.

Magazine Advertising

Consistently advertised in
THE SATURDAY EVENING POST
and COLLIER'S.

Radio Program

Regularly featured on the J-M News Program on 450 Mutual Stations, and broadcast 5 nights a week.

Johns-Manville asbestos

And you can clinch more sales using Johns-Manville Brake Lining —a name known to millions for quality!

For passenger car service

4-STAR* and WIREKLAD*

LININGS give you a choice between 4-Star sets, the finest brake lining that manufacturing skill can produce—or, Wireklad, the latest development in high performance brake materials for bonding or riveting.

For taxicabs and light trucks

FLEET-TESTED*

LINING. This premium lining has no equal for performance, stopping ability, long life and freedom from scoring tendencies in hard commercial service. Ideal for power brakes.

Johns-Manville trade marks

Local Sales Aids

Motorists coast-to-coast are being urged to look for the J-M Dealer. You get signs, posters, manuals and other effective point-of-sale material.



TO DEALERS—

See your local Johns-Manville Distributor for more information on how you can increase your brake service business. Be sure to get your copy of the J-M Brake Reliners Manual. It's packed with easy-to-understand instructions for servicing brakes on all popular passenger cars.

TO DISTRIBUTORS—

This is another in a new series of Johns-Manville advertisements directed to your dealers. Get the full story of this constructive new program. Talk to your J-M Representative, or write to Manager, Automotive Division, Johns-Manville, Box 60, New York 16, N. Y.

JOHNS-MANVILLE



FRICITION MATERIALS

Transmission Continued from Page 60

Shifting Into First or Low Gear

The drive gear (A) in Figure 1 and the countershaft gear (B) are in constant mesh; the power of the engine is thus transferred to these gears. The operator then transfers this power by gear selection to the prop shaft and the rear axle. The mainshaft low and reverse sliding gear (C) is splined to its

shaft. When the clutch is depressed and the shift is made, the gear slides forward to mesh with the low gear on the countershaft (arrow D). Then, the low gear on the countershaft turns the low gear on the main shaft, which turns the prop shaft. The light arrows on the main and countershaft indicate the direction the

shafts are turning. The heavy line represents the power flow in this gear. Because of the differences in gear sizes, the end result will be that the clutch will turn four to five revolutions for each revolution to the shaft going to the rear wheel. Increasing the engine speed in relationship to the speed of the shaft going to the rear wheel produces more power, using a smaller engine. Explaining it briefly, the transmission makes the prop shaft turn slower than the faster turning crankshaft.

Shifting Into Second Speed

The power is transmitted through drive gear (A) to the countershaft gear (B). The second speed gear of the countershaft cluster (C) is always in constant mesh with the second speed gear on the mainshaft (D). The mainshaft second speed gear rotates freely on the shaft, so the shifting process must lock the gear to the shift. This is done through the synchronizer. The two driving parts of the synchronizer are the



SOL-SPEEDI-DRI®

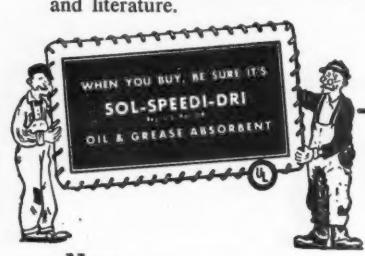
No idle statement, that! For America buys more Sol-Speedi-Dri than any other oil and grease absorbent. That's because pound for pound, dollar for dollar, Sol-Speedi-Dri gives *more for the money*, all factors considered. "Dry cleaning" with Sol-Speedi-Dri is *your* best way to keep floors clean and slip-proof. Send coupon today for free sample and literature.

Warehouse stocks maintained in principal cities of the United States and Canada.

Inquiries in New York, New England, and New Jersey should write to Speedi-Dri Corp., Elmhurst in U. S. to Waverly Products, Products Co., 1724 Chestnut St., Phila. 3, Pa. In Canada, G. H. Wood & Company Ltd., Toronto. Branches throughout Canada.

SPEEDI-DRI CORP.
210 W. Washington Sq., Phila. 5, Pa.

FREE SAMPLE:
Fill out the coupon and mail today for free sample and literature.

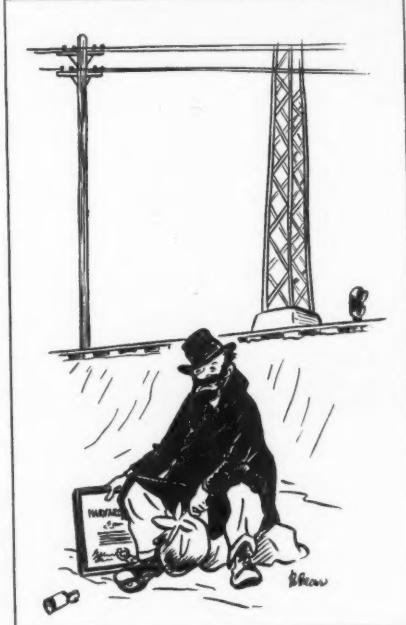


Name _____

Address _____

City _____ State _____

MA-11-53



clutch gear, which is splined to the mainshaft, and the clutch gear sleeve, which is splined to the gear. When the driver shifts into second, the clutch gear sleeve slides to the rear to mesh with the clutch teeth on the shoulder of the second speed gear.

When the sleeve is meshed with
(Continued on page 120)

I can't finish this lubrication.
Jim's got all the air on his
undercoating job!

What we need
is a new Westinghouse
Air Compressor

WHEN a limited air supply makes you shut off one tool to operate another, it's time to correct the situation. And the best way to do it is with a new Westinghouse Air Compressor that has ample capacity for the equipment you're operating today and some to spare for the tools you may add tomorrow.

You'll find Westinghouse Air Compressors your best answer to tomorrow's air problems, not only in terms of capacity, but in terms of long, trouble-free service, too.

For example, you'll never damage a Westinghouse "Y" Air Compressor by running it when oil is below the proper level. This compressor almost thinks for itself—when oil is low it refuses to pump air. This is only one of the exclusive Westinghouse features—others are a positive starting unloader and controlled pressure lubrication.

Ask your Westinghouse Air Compressor dealer to analyze your air requirements and recommend the model suited to your needs. His name is in the classified section of your telephone directory. He is also equipped to service your Westinghouse Air Compressor through its working life.

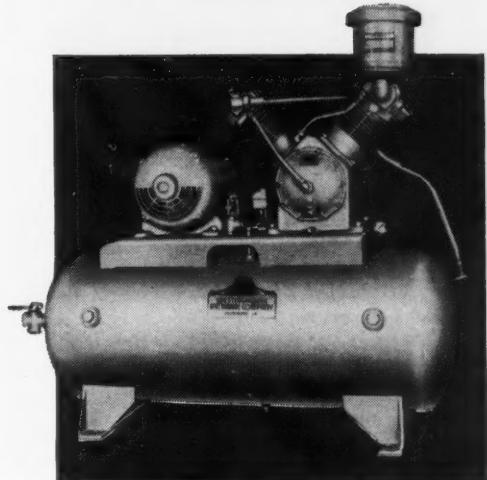


Westinghouse Air Brake COMPANY

INDUSTRIAL PRODUCTS DIVISION

WILMERDING, PENNA.

Factory Branch: EMERYVILLE, CALIF. Distributors throughout the United States... Consult your Classified Directory. Distributed in Canada by: Canadian Westinghouse Co., Ltd., Hamilton, Ontario.



WESTINGHOUSE 15 hp "Y"
WILL DO THE JOB

This new 15 hp Westinghouse "Y" is large enough to handle all your needs. And there's a complete range of smaller sizes down to 1½ hp. They give you the high pressure needed for jobs requiring high pressure, and, with the addition of a Westinghouse Reducing Valve, fixed low pressure for jobs like paint spraying or body polishing.



The "Man at the Bottom of the Hill" is Getting the Tire Chain Business

Few motorists think about buying chains until they're stuck. Then they buy from the handiest source—the "man at the bottom of the hill."

Sell your customers

CAMPBELL *Lug-Reinforced* CHAINS

CAMPBELL offers this sure-fire program to make you the man at the bottom of the hill and the top of the sales heap:

Campbell's strong national advertising in *Saturday Evening Post* and *Collier's* helps pre-sell motorists on the longer wear and better traction of Campbell's patented *Lug-Reinforced* construction. National Safety Council Tests prove reinforced chains provide nearly 3 times greater stopping-ability and 4 to 7 times greater starting and climbing traction.

And Campbell's modern package, plus eye-catching banner, ad-mats, streamers, post cards and display ideas attract Campbell Chain sales to your station.

Write for 1953 Merchandising Kit and order your stock of Campbell *Lug-Reinforced* Tire Chains now!



CAMPBELL CHAIN Company

MAIN OFFICE: YORK, PA.

West Burlington, Iowa; Portland, Oregon; Sacramento, Calif.

Chain for every need...industrial...farm...marine...automotive



Transmission ...

Continued from Page 118

the clutch shaft, the second speed gear is locked to the mainshaft. The flow of power is again indicated by the heavy line.

Shifting Into High or Third Speed

When the transmission is in high or direct drive, the power comes directly from the drive gear (A) to the mainshaft. This is done without going through the countershaft cluster and without changing the ratio of the crankshaft to prop shaft speed. Power flow is indicated by the heavy line.

Reverse

A reverse idler gear, mounted on its own shaft (A) is located in the rear of the transmission case. It is always in constant mesh with the reverse gear of the countershaft cluster (B). When the driver shifts into reverse, he slides the mainshaft low and reverse gear (C) to the rear. It meshes with the reverse idler. The idler makes the mainshaft turn in the same direction (note arrows on shaft) as the cluster gear rotates. The illustration shows how the mainshaft rotates in an opposite direction to that of the crankshaft.

Chrysler Plant Facilities At Los Angeles Expanded

Production facilities at Chrysler Corporation's Los Angeles plant will be expanded in the near future with the installation of two new assembly lines and new body finishing operations.

The two new final assembly lines will replace the single line that has previously produced Plymouth, Dodge, De Soto, and Chrysler passenger cars at the Los Angeles plant.

The new body finishing installation will include facilities for metal finishing, painting, and trimming of passenger car bodies. Up to the present time these operations have been carried on in Detroit plants. The assembly lines and body plant are expected to be in operation in the first half of 1954.



"I proved Monro-Matic Shock Absorbers outperform the field!"

—says Bill Vukovich

BIGGEST MONEY WINNER

... brings in the fastest cars!
... brings in the biggest profits!

MONROE'S 30-DAY FREE RIDE PLAN

The industry's most sensational, sales-producing plan. Dealers across the nation report shock sales and profits upped as much as 500%. It will pay you to try Monroe's 30-Day Free Ride Plan.

PROVED ON WORLD-FAMOUS TRACK

MONRO-MATIC SHOCK ABSORBERS GIVE SMOOTHEST, SAFEST RIDE!

On the Indianapolis Speedway, Monro-Matics have proved their ability time after time to produce a winner. The four fastest cars in the 1953 "500" were Monro-Matic equipped.

Monro-Matics will win for you, too! They'll win friends for you because they make any car ride better than new. And they'll bring in the biggest, easiest profits of any item in your shop. Installed in as little as half-an-hour, Monro-Matics pay you up to \$15.00 profit per set. See your jobber or write.

FREE! You are invited to a FREE showing of "Behind the Scenes at Indianapolis." Ask your jobber for date of showing.

MONROE AUTO EQUIPMENT CO.

MONROE, MICHIGAN

World's Largest Maker of Ride Control Products

Rubber Mfrs.' Association Offers Tips On Tire Life

In a new booklet offered by the Manufacturers' Association, there are a number of valuable suggestions offered on extending tire life. The booklet points out that the proper care of tires on a car can benefit the motorist in three ways. It will: make driving safer, assist in the efficient operation of the car, and save the operator money. The booklet shows in the

first section a variety of fabric injuries and how to avoid them. It points out six tire-saving practices which are followed by good drivers: 1. use correct air pressure; 2. do not drive over curbs, holes or other obstructions; 3. avoid riding edge of pavement; 4. avoid speeding over rough roads and around curves; 5. drive at moderate speeds; 6. inspect tires regularly.

The second section deals with

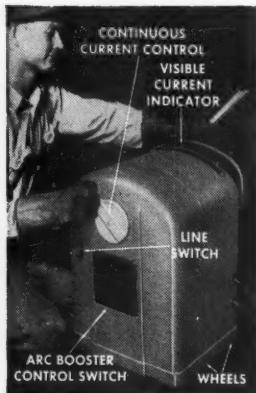
tread wear and explains the factors that cause tread wear. These are under-inflation, over-inflation, excessive heat, speed, rough road surfaces, bad driving habits, operating on rough, hilly terrain, and mechanical troubles such as improper wheel alignment or a grabbing brake. The booklet illustrates various tread wear conditions, and explains the probable cause for each abnormal wear characteristic.

In section three, the importance of correct inflation is pointed out. Special note is made about the danger of over-inflation, a practice which many motorists follow, feeling that they are extending the life of the tire by keeping it hard. The booklet states that over-inflation is an 8-way risk. It: 1. causes rapid tread wear; 2. lowers resistance to fabric injuries;



"LINCWELDER" COMBINES SPEED WITH QUALITY TO CUT YOUR REPAIR COSTS

Fewer manhours are needed to repair heavy car frames or light bodies with the unique "Lincwelder AC-250-K". And here's why: "Lincwelder" produces quality welds faster and easier in any position . . . flat, vertical or overhead. As a result, workmanship is improved, customer service speeded while your labor costs are reduced and profits increased.



YOU BENEFIT 5 WAYS:

1. **Easier Welding** . . . It's simple to strike an arc in any position with the Lincoln Arc-Booster. There's no electrode sticking.
2. **Faster Welding** . . . The broad current range 30 to 300 amps efficiently handles $\frac{1}{8}$ " to $\frac{1}{4}$ " electrodes.
3. **Simple to Install** . . . "Lincwelder" operates on single phase current. Moves about the shop on wheels.
4. **Dependable** . . . has plenty of current capacity with complete protection against overload.
5. **Low in Price** . . . In spite of "Lincwelder's" range and heavy duty construction, this unique machine sells for less than welders of similar capacity.

SEND FOR COST CUTTING FACTS. Details on "Lincwelder AC-250-K" are in free bulletin 1331 available by writing on your letterhead to:

THE LINCOLN ELECTRIC COMPANY
Dept. 4009
CLEVELAND 17, OHIO

LOOK TO



FOR LEADERSHIP

The World's Largest Manufacturer of Arc Welding Equipment



"We just seemed drawn to each other."

3. puts excessive strain on beads and rim; 4. causes abnormal tire growth, tread cracking; 5. increases the tendency toward separation; 6. puts the rubber under tension, making it more susceptible to cuts and snags; 7. decreases comfort and cushioning effect; 8. reduces traction, skid resistance, and braking efficiency.

In section four, wheel balance is discussed and the two types of unbalance conditions are explained. The fifth and last section covers the importance of proper tube mounting; describes the tire and tube troubles that can come from improper tube mounting, and briefly points out the importance of having cuts repaired properly and promptly.



You can stake your
reputation on

PERFECTION "Certified Parts"

You'll find it good business to install PERFECTION Certified Replacement Parts. The low installation cost wins the favor of your customers, and the dependable performance of these products makes your customers real boosters for you.

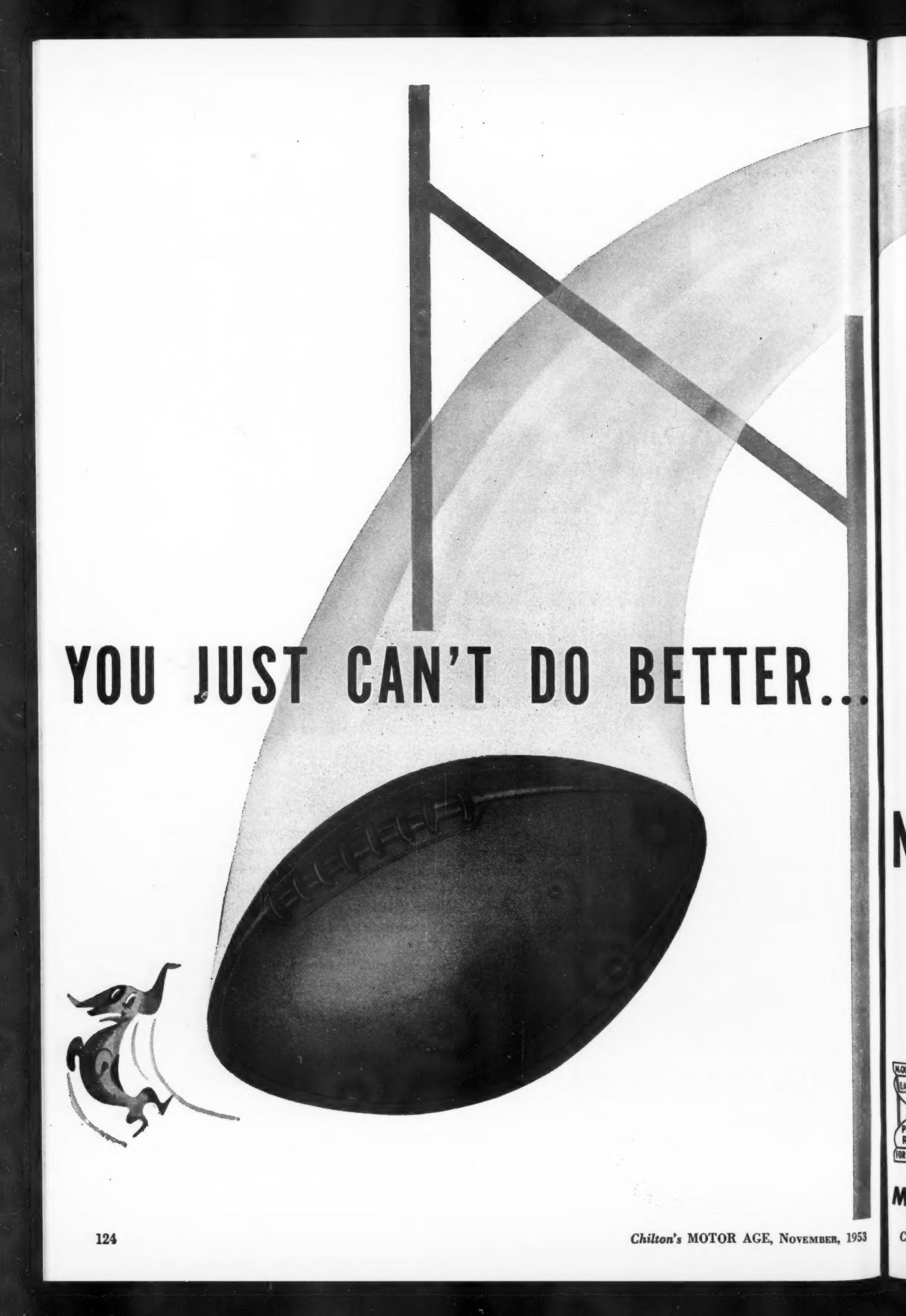
Behind the parts constituting this great line are over 30 years of PERFECTION manufacturing achievement. This important "know-how", the use of the finest materials, heat treating under scientific control, precision accuracy and rigid inspections throughout production—all contribute to furthering the fine reputation accorded PERFECTION products.

There is a PERFECTION jobber near you. He carries a representative stock of these quality parts and is prepared to render prompt, efficient, friendly service. If you do not know his name, write us.

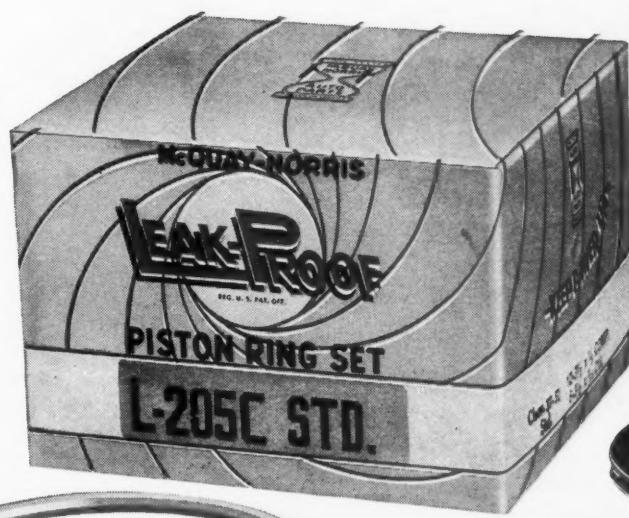


Perfection Gear Company Harvey, Illinois

PERFECTION PRODUCTS INCLUDE: Silent Timing Gears, Metal Timing Gears, Silent Timing Chains, Sprocket Gears, Transmission Gears and Parts, Differential Ring Gears and Pinions, Differential Cases and Parts, Fly Wheel Gears, Clutch Plates, Pressure Plates, Clutch Cover Assembly Parts, Clutch Forks and Parts, Clutch Throwout Bearings, Clutch Rebuilders.



YOU JUST CAN'T DO BETTER...



NO, YOU JUST CAN'T DO BETTER!

This set will out perform any other piston ring set in the
"hard to hold" jobs regardless of kind, design or price

**CHROME
CONTROL**

LEAK-PROOF
REG. U. S. PAT. OFF.

PISTON RINGS



McQUAY-NORRIS MANUFACTURING CO., ST. LOUIS 10, MO.

Chrysler Corp. Purchases Briggs' Plants, Machinery

After a series of negotiations the managements of Chrysler Corp. and Briggs Mfg. Co. have agreed to the purchase by Chrysler of the principal plants, machinery, and equipment of Briggs for \$35 million, it was announced by L. L. Colbert, president of Chrysler Corp.

Until the transfer is completed, which it is estimated will not take more than 60 days, the present

Briggs management will continue to operate the properties.

The transaction does not include the Briggs Beautyware Division nor the plants identified with that operation.

August Car Registrations Squeeze Past Half-Million

New passenger car registrations for August squeezed by the half-million mark to make the month the sixth this year that reg-

istrations have been greater than 500,000. The total for August was 502,430.

If September new car registrations hold close to the 500,000 mark, the total for the third quarter should surpass 1,500,000 units and will bring the year's total through September to upward of 4,250,000. The total for all of 1953 should be around 5,500,000.

**THERE'S
A BETTER
WAY IN
BEARINGS
TOO!**



... replace with HYATTS



Here's how to save when you make bearing replacements in automotive equipment.

Do the job with Hyatts! They're specified as original equipment by leading manufacturers of cars, trucks and buses, and Hyatt replacement bearings are exact duplicates—the same size, the same type. When you use Hyatts, your job is quicker, easier. And your customers will thank you for the same high quality, the same high degree of accuracy and the same stubborn resistance to wear. Be sure you specify the bearings in the blue and yellow box—Hyatt Bearings. Hyatt Bearings Division, General Motors Corporation, Harrison, N. J. and Detroit, Michigan.

HYATT ROLLER BEARINGS
A GENERAL MOTORS PRODUCT  A UNITED MOTORS LINE
DISTRIBUTED BY DEALERS EVERYWHERE



Auto-Lite Milestone

Starting motor number 40 million is inspected by Royce G. Martin, right, president and chairman of the board of directors of the Electric Auto-Lite Co., and B. A. Fay, vice-president in charge of production. Auto-Lite made the first single-unit, six volt starting motor in the industry back in 1912.

Vukowich to Pilot Lincoln In Pan American Races

Bill "Vucky" Vukowich, winner of the 1953 Indianapolis "500," has entered the International Standard Class of the Fourth Pan American Road Race, and will be driving a 1953 Lincoln sponsored by Hilton Motors of Los Angeles, Calif. Vukowich won the Indianapolis Classic this year driving a Howard Keck Fuel Injection Special. His co-driver will be Vern Houle of South Gate, Calif.

The Pan American Road Race takes place from November 19 through November 23, beginning in Tuxtla Gutierrez, state of Chiapas, and ending on the U. S. border at Ciudad Juarez.

Bride: "The two best things I prepare are meat loaf and peach cobbler."

Groom: "Well, which is this?"

HAVE YOU COMPARED
CORK GASKETS
LATELY?



In the package, of course, most makes of gaskets look alike. But in the shop and on the road are where important differences show up.

There's where Armstrong-Victor gasket users are realizing the benefits of A-V's exclusive Electronic cork curing process. It preserves the natural liveliness of cork, giving gaskets greater strength and sealing power. It doesn't over-cure or under-cure cork like steam processes can do.

In your shop, modern-made Armstrong-Victor gaskets help you seal a job tight and right on the first try. They fit better because there's no shrinkage. They handle easier without breakage. And on the road, they protect your work against leaker complaints; help you keep customers happy.

NOW BETTER THAN EVER . . .

NO INCREASE IN COST

Now you get even more for your money in Armstrong-Victor gaskets at the price you would pay for ordinary quality. Only Armstrong-Victor's leadership in the cork gasket field makes this possible. Your Victor Jobber carries factory-fresh stocks—in packaged sets or individual pieces—for every make and model you service.

Better look into Armstrong-Victor Cork Gaskets if you aren't using them. Victor Mfg. & Gasket Co., P. O. Box 1333, Chicago 90, Ill.

VIC CORKY SAYS:

You'll find this 2-notch trade-mark on genuine Armstrong-Victor Replacement Gaskets only.



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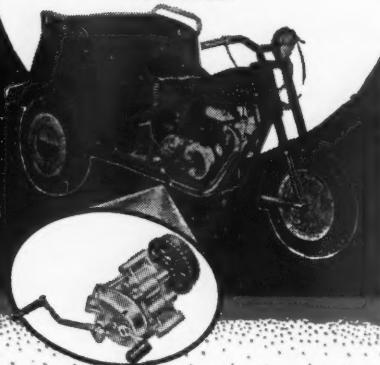
V

CORK COMPOSITION GASKETS • CORK SHEETS

new 4 Speed
TRANSMISSION

makes the
Mustang
DELIVERCYCLE

more rugged than ever for
PICK-UP and DELIVERY
SERVICE



MUSTANG DELIVERCYCLE'S new 4-speed Burman wide range ratio heavy duty transmission means greater load capacity plus longer life, trouble free performance. The Mustang DELIVERCYCLE offers low operating cost . . . minimum service and replacement . . . low initial investment . . . and most important of all, increased profit. Complete rider control minimizes possibility of accidents and the amazing accelerating power provides easy traffic maneuvering.

PERFORMANCE
MAXIMUM SPEED: 40-45 MPH
POWER OUTPUT: 9.5 H.P.
COMPRESSION RATIO: 6 to 1
GAS-MILEAGE: 50 Miles per Gallon

**EXCLUSIVE
MUSTANG FEATURES**

- ✓ load spring suspension
- ✓ shock absorbing telescopic front forks
- ✓ low center of weight for stability

ADJUSTABLE TOW BAR FOR AUTOMOBILE PICK-UP AND DELIVERY



Automobile Dealers
Service Stations
Garages

THE UTILITY OF A BIG MACHINE
AT HALF THE OPERATING COST

For full information on Mustang DELIVERCYCLE "penny-saving" features write

MUSTANG MOTORCYCLE CORP.
635 West Colorado Boulevard
Key: M A Dept. 105. Glendale 4, Calif.

Chrysler

Continued from Page 38

The conventional type gages for oil pressure and amperes have been replaced by indicator lights. If either oil pressure or battery current should reach a low point, a red light flashes on the instrument panel.

Taking advantage of the inherent possibilities of the Chrysler OHV, V-8 engine, two horsepower versions are made available in the 1954 New Yorker line—195 hp on the New Yorker, 235 hp on the New Yorker DeLuxe and Imperial models—without affecting basic design, displacement or compression ratio.

On the 195 hp version, the transition from the previous 180 hp was made rather simply. The changes in the main are as follows: enlarging intake valve and port diameter

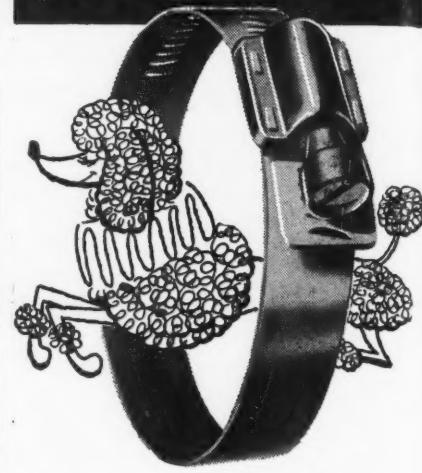
*No man goes before his time, unless
of course, the boss leaves early.*

by $\frac{1}{8}$ -in., and enlarging exhaust valve and port diameter by $\frac{1}{4}$ -in. These changes, with other minor modifications, have increased breathing capacity.

The change from 180 hp to 235 hp on DeLuxe and Imperial engines, on the other hand, required six major engine modifications, primarily to increase breathing capacity. These changes may be listed briefly as follows: adoption of a four-barrel carburetor; larger air cleaner, 3-in. larger in diameter, with filter case flared farther and deeper; on intake manifold—cross sectional areas of the branches have been increased and a secondary pair of risers added; on exhaust manifold—diameter of outlets have been increased from $1\frac{1}{8}$ to 2-in.; on the cylinder head—intake valve and port diameter enlarged by $\frac{1}{8}$ -in., exhaust valve and port diameter enlarged by $\frac{1}{4}$ -in.; in addition, a dual exhaust system has been adopted to further reduce back pressure and improve silencing.

Windsor DeLuxe models are powered by Chrysler's six-cylinder Spitfire which produces 119 hp at 3600 rpm. Smoother operation at low speed is obtained by the introduction of newly-designed shear-type engine mountings.

Always **TOP PERFORMERS**



"Aero-Seal" HOSE CLAMPS



**Worm Drive
Never Works
Loose**

People applaud the way AERO-SEALS keep a tight, leakproof, vibration-proof connection. No pinched or damaged hose — and the clamp won't come loose or snap open, no matter how rugged the service. Easy, one-hand installation. Screwdriver or thumb clamp. The precision worm gear drive does the trick, and AERO-SEALS can be used again and again. Stainless steel bands. 4 sizes cover 90% of needs. AERO-SEALS are your profit pals!

See your local jobber

**"Aero-Seal"
WORM DRIVE
HOSE CLAMPS**

ANOTHER **BREEZE** PRODUCT

BREEZE CORPORATIONS, INC.
41 South Sixth Street, Newark 7, N. J.

"I have found Commercial Credit will cooperate in any way possible"

says **WILLIAM L. THOMAS**,
Cleveland's largest Ford Dealer



“WITHOUT the assistance and co-operation of COMMERCIAL CREDIT, we could not have made the same progress. Whether it's a matter of sitting down to discuss a specific financing problem, handling collections so as to avoid expensive reposessions or keeping our sales force posted on the Plan, we find COMMERCIAL CREDIT always ready to be helpful.

“COMMERCIAL CREDIT'S automatic customer follow-up helps us maintain contact with the customer, gives us first crack at selling him another car. Repair work brought to us by adjusters for the Calvert Fire Insurance runs into thousands monthly. We make it a point to try and finance every deal through COMMERCIAL CREDIT PLAN.”

• • •

Why not borrow a leaf from Mr. Thomas's success story and start using the COMMERCIAL CREDIT PLAN. For complete facts, just call the COMMERCIAL CREDIT office nearest you. Be sure and ask to see "The Salesman's Angle" when you do.

**COMMERCIAL
CREDIT
CORPORATION**

A service offered through subsidiaries of
Commercial Credit Company, Baltimore
... Capital and Surplus over \$135,000,000
... offices in principal cities of the United
States and Canada.

COMMERCIAL CREDIT DEALERS ARE Successful DEALERS

Sealed Power Corp. Sells Chassis Business to Moog

The Sealed Power Corp., Muskegon, Mich., announced that it has sold the front end and chassis parts phase of its business to Moog Industries, Inc., of St. Louis.

Sealed Power will continue its piston ring, piston, cylinder sleeve, and valve and water pump lines. Moog will concentrate the major part of their production facilities on chassis parts.

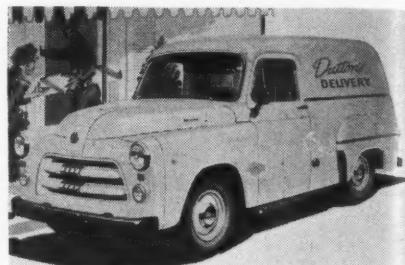
Terms of the sale provide for Moog to take over Sealed Power's

entire inventory of king bolts, shackles, tie rod ends and coil action parts on Jan. 1, 1954. Sealed Power's jobber distributors handling these items can now be served by the Moog organization.

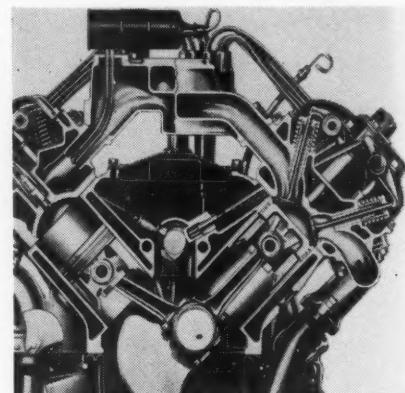
C-1 Series Dodge Trucks Offer Town Panel Model

The Town Panel in the new C-1 series of Dodge trucks has been reduced three inches in over-all height, has increased glass areas and loading heights have been

lowered. It is a 100 horsepower vehicle with a payload capacity of 1,475 pounds and 155 cubic feet of cargo space.



V-8 power plants are offered in three horsepower ratings in the C-1 series of Dodge trucks—133,



153 and 172. This drawing shows details of the hemispherical combustion chambers, high-lift lateral overhead valves, short stroke and large bore.

There's All the Difference in the World in Grease Fittings!

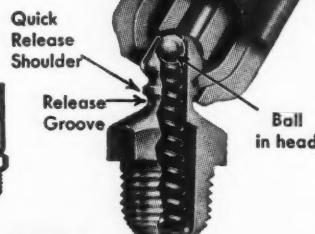
UNIVERSAL

Quick-Release Shoulder prevents break-offs, distortion and twist-outs

Universal's patented release shoulder unlock's coupler jaws quickly and easily, prevents jaws from sliding down on neck of fitting. Release groove, under the shoulder permits nose of coupler to clear the fitting without binding — saves time and the nuisance of replacing damaged fittings.



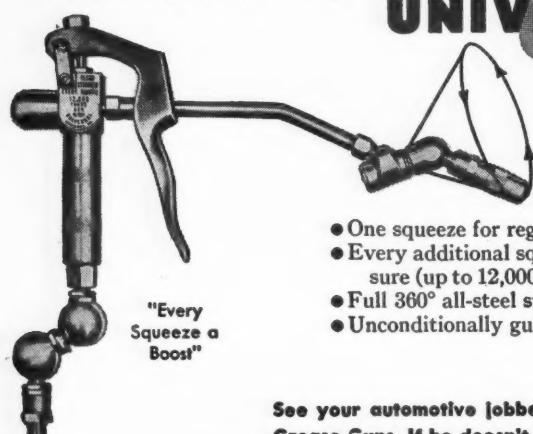
Complete line of lubrication accessories. Write today for new catalog.



UNIVERSAL

12,000 pound Grease Gun

- One squeeze for regular greasing
- Every additional squeeze builds up more pressure (up to 12,000 pounds) for stubborn jobs.
- Full 360° all-steel swivel coupler
- Unconditionally guaranteed for 1 year



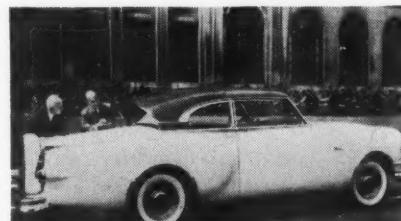
See your automotive jobber for Universal Fittings and Grease Guns. If he doesn't stock them, write direct.

U

IVERSAL LUBRICATING SYSTEMS, INC.

797 ALLEGHENY AVE., OAKMONT, PA.

More efficient car use and better service have doubled the useful life service of the U. S. passenger car since 1935. The average car today isn't scrapped until 116,500 miles as compared with 58,000 miles 18 years ago.



Inspect Packard's 'Balboa'

William H. Graves, left, engineering vice-president, and Edward McCauley, chief styling engineer, inspect Packard's new experimental sedan, the "Balboa." The roof forms a canopy over the rear window, which is out of reach of the sun. The window, flat and distortion-free, has a reverse slope and is not exposed to rain or snow. The car is one of a series on which Packard is experimenting.

Wherever you put them...
BEAR SIGNS
 build your business!



"MOST EFFECTIVE BUSINESS BUILDERS
 we've ever used"... so say the thousands of
 shops displaying the "Bear" Sign now being
 nationally advertised in

POST and **Farm Journal**



No Limits to What It Will Do...No Limits on the Profits You Make!

You Do the Job Right in Less Time with the

EXPANDABLE "BEAR" 195-84 SERVICE

... that's why it is the most popular
 ... the most widely used alinement
 service in America!

You're not limited to just a few simple wheel alinement service operations when you set up with the "Bear" 195-84! There is **NOTHING IN ALINEMENT IT WON'T DO**... that's why the sky's the limit for profits! And when you're ready for frame straightening... you can **E-X-P-A-N-D** your "Bear" by just adding a few tools and frame attachments and you're all set for big frame straightening profits, too! This **EXPANDABLE** feature is a "Bear" EXCLU-

SIVE that makes "Bear" the smart investment from the start! The **BIG PROFIT POWER** of nationally-advertised "BEAR" SIGNS... the extra stamina of "Bear" built-like-a-battleship construction... the extra speed... extra power... and extra tools you get with the "Bear" 195-84 make it the No. 1 choice of America's automotive repair men. For all the facts write for catalog data bulletin.
BEAR MFG. CO., DEPT. M-1, ROCK ISLAND, ILLINOIS.

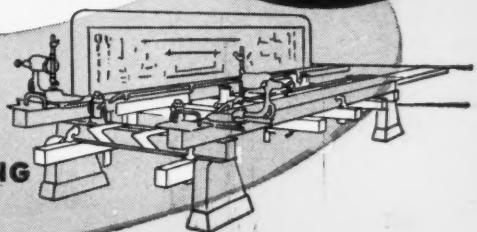
YOU GET ALL THIS!

- 1 Complete 5-point Alinement Checking and correcting plus axle and rear housing straightening.
- 2 72,000 lbs. of hydraulic pressure for speed and ease in correcting.
- 3 Extra high so mechanic can work faster and easier. Available in flush or floor models!

1 NO LIMIT ALINEMENT SERVICE

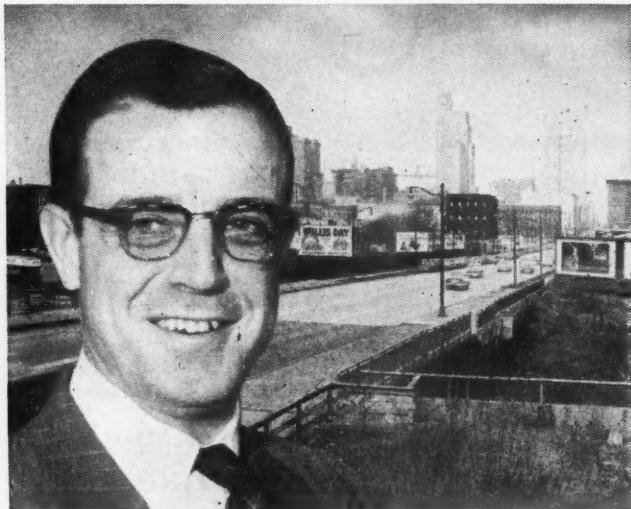
2 COMPLETE FRAME STRAIGHTENING SERVICE

EXPANDABLE 2-in-1 service
 More Profits per invested dollar!



the MORE "BEAR" you have the MORE MONEY

Battery Wholesalers say... **"PREST-O-LITE PLAN HELPS"**



TOLEDO—L. V. Chambers, Luttrell Auto Supply Co., says, "Because Hi-Level sales mean extra profits plus extra business, we call Prest-O-Lite Hi-Level the extra premium battery."



NEW ORLEANS—J. C. Greiner, Greiner Auto Parts Co., Inc., says, "Thanks to Prest-O-Lite, we can sell both jobbers and dealers alike. The result . . . faster turnover with maximum profits."

HERE'S HOW DEALERS BENEFIT—

- **FAST SELLING PREMIUM LINE—MORE PROFIT**
- **NATIONAL AND LOCAL ADVERTISING—MAKES PREST-O-LITE EASY TO SELL**
- **NEARBY SOURCE OF SUPPLY—FAST TURNOVER**
- **ON-THE-SPOT ADJUSTMENTS—SATISFIED CUSTOMERS**

Prest-O-Lite

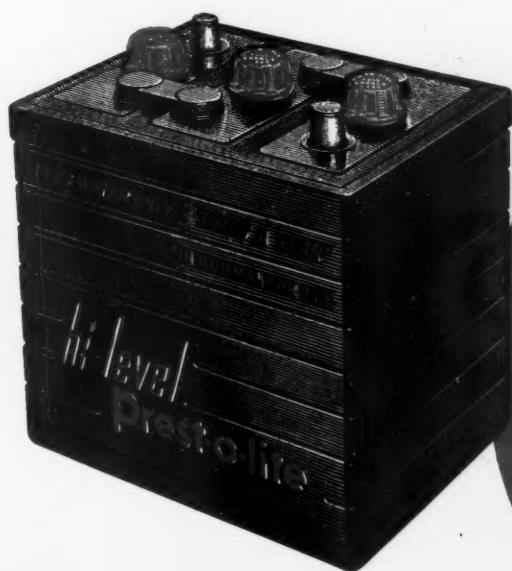
US SERVE DEALERS BETTER™



FORT SMITH, ARK.—Ray Cotton, Williams Hardware Co., Inc., says, "There's nothing finer for our business than Prest-O-Lite's Protected Territory Plan. Customers get better service; we get repeat business."



SPOKANE—R. M. Jones, Jones Auto Supply, says "Prest-O-Lite's national advertising with pro football tie-in really builds acceptance for Prest-O-Lite Hi-Level Batteries."



PREST-O-LITE
believes
IN THE BATTERY
WHOLESALE!

hi-level

NEEDS WATER ONLY 3 TIMES A YEAR...LASTS LONGER, TOO!
IN NORMAL CAR USE

Clearing House Continued from Page 57

using this oil pressure tester, use light oil and apply about 40 pounds of air to it.

The following is the tune-up data on the 1930 Cadillac V-8:

Main Bearings: Steel backed. Renewable from below. Rod and piston assemblies are removed from below.

Tappet Clearance: Inlet .004

inch. Exh. .006 inch.

Valve Timing: With No. 1 inlet tappet set to .004 in. inlet opens 9½ degrees or 3 flywheel teeth before T.C.

Set Angle of Inlet Valves: 30 degrees.

Car Serial and Engine Number Located: In crankcase, just below water inlet on R.H. side.

Interrupter Point Gap: .018-.024 inch.

Spark Plugs: AC—G10 or GG. Colder—G9. Warmer—G11. Set to .025—.028 inch.

Ignition Timing: With manual control fully advanced spark occurs 18½ deg. or 5½ flywheel teeth before T.C. or when the flywheel mark IG/A lines up with the pointer.

Movable breaker points open 90 degrees or 28½ teeth on flywheel after stationary points.

Location of Timing Marks: Right side of flywheel housing.

Firing Order: 1L, 4R, 4L, 2L, 3R, 3L, 2R, 1R.

Number of Teeth in Flywheel: 113.

Brake Make Drum Diameter Lining Width: Huck, 16½ x 2¼ in.

Rear—same. Hand: uses rear service shoes.

Oil Capacity: 3 in crankcase in quarts.

Transmission Oil, lbs or pts: 5.

Differential Oil, lbs or pts: 6.

Capacity in Cooling System in qts: 6.

Oil Pressure: 7—10 idling. 20 lbs. at 30 mph.

Adjustment located timing chain case.

Compression Gage Pressure: 5.15. Ratio: 69 to 79 lbs. 5.03 ratios 66 to 76 lbs at cranking speed.

Doing Valve Jobs on Cars With Air Conditioning Units

I have had opportunity to do valve jobs on Olds and Cadillacs which were equipped with air conditioners. As this would necessitate removal of the compressor I had to turn them down because I cannot get the procedures for connecting and disconnecting these units.

Could you recommend a method for removing and re-installing the compressor necessary for doing a valve job on these cars? I have specific reference to controlling the gas in this operation.

R. W. Buck
Buck Auto Repairs
Dallas, Texas

THERE is nothing tricky or complicated about removing these units. First of all, shut off the valves controlling the Freon, then

(Continued on page 136)

Just the carburetor parts you need!

HYGRADE

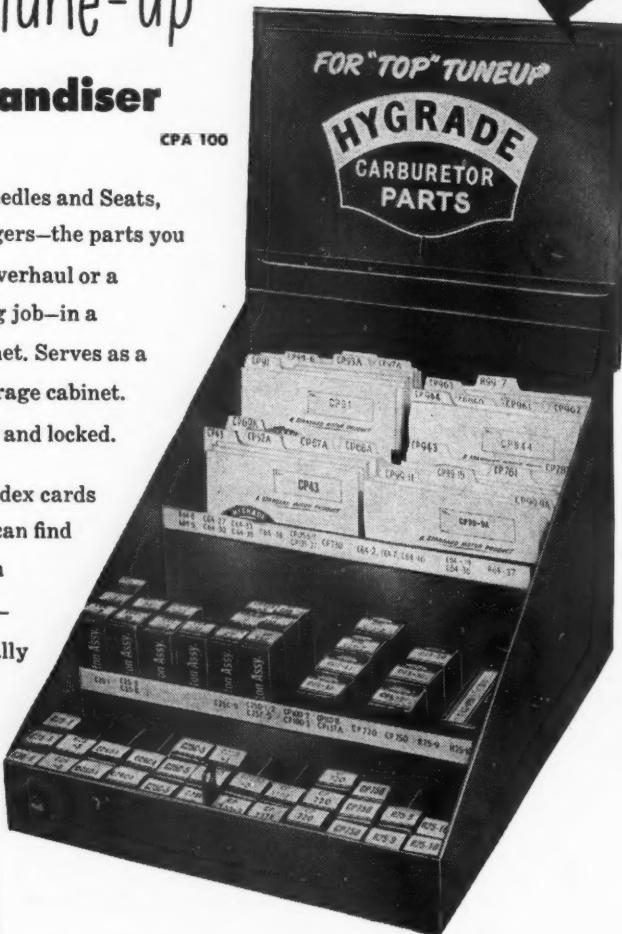
"Top Tune-Up"

merchandiser

CPA 100

Gasket Packets, Needles and Seats, Pump Piston Plungers—the parts you need for a simple overhaul or a complete rebuilding job—in a durable metal cabinet. Serves as a display, or as a storage cabinet. Cover can be closed and locked.

Partitioned with index cards and labels . . . you can find the right part in an instant. No waste—parts are individually packaged!



Write for catalog sheet HF491 describing special price offer, free dealer helps.

HYGRADE PRODUCTS DIVISION

Department MA 3

STANDARD MOTOR PRODUCTS, INC.
37-18 Northern Blvd., Long Island City 1, N. Y.



Last call for Fall FILTER-CHANGE

During the next 30 days—You can sell a Purolator Oil Filter . . . plus an extra quart of oil—TO EVERY CUSTOMER WHO COMES IN!

CLEAN UP with Purolator!

**...SELL EVERY CUSTOMER
a clean, new Purolator**

FILTER-CHANGE Time now: Time for you to make a clean sweep of all your customers! **Time to replace every dirt-loaded oil filter with a Purolator®.**

A sure thing! Most motorists believe in fall filter-changes (you don't have to sell them).

And millions of dollars of advertising is keeping them lined up . . . Including powerful Purolator pages

in Saturday Evening Post, Life, Look, Popular Science, Popular Mechanics, farm magazines . . . Tested, proved Purolator displays, posters, streamers at point-of-sale.

Good money, too! Every Purolator Micronic® Oil Filter you sell carries a nice profit . . . plus a profit on the extra quart of oil needed to take the place of the dirty oil that goes out with every dirty filter!

Remember: *Purolator covers the market 100%.* (1) More makes of cars are Purolator-equipped. (2) All filter-equipped cars take Purolator Filters. And Purolator sales grow—and grow—because Purolator filters more dirt, finer dirt, faster—always does a better all-around job.

Check your supplier for stock now . . . Check him too for special Purolator fall promotion material.



®Reg. U. S. Pat. Off.

PurOlator
World's finest **OIL FILTER**

PUROLATOR PRODUCTS, INC.,

RAHWAY, N. J. AND TORONTO, ONTARIO, CANADA

disconnect the lines and mounting bolts and the unit should be lifted out.

When reinstalling the lines, lubricating oil should be used on all the fittings to prevent cracking of the lines.

Your biggest problem will be in replacing the Freon that was lost

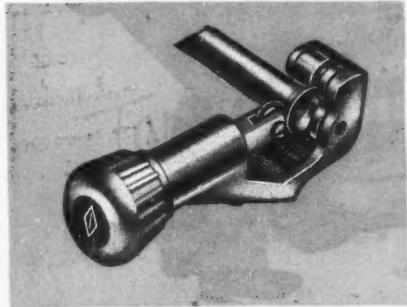
when the lines were disconnected. I would recommend having this replaced at an agency.

This Reader Found the Answer to a Tough One

Here is something that I feel might help someone.

TUBING TOOLS

Mechanics Go For!



IMPERIAL HI-DUTY TUBE CUTTER

An outstanding favorite. Free-wheeling ball-bearing action. Flare cut-off groove in rollers. Retractable reamer. No. 274-F for $\frac{1}{8}$ " to 1" O.D. tubing.

A HINT to Busy Shops
That Want to Get Gas, Oil
and Brake Line Jobs Done Faster

Just put one of these beauties in the hands of any good mechanic. Watch his eyes light up as he admires their sleek design—their sound construction. He knows that better designed tubing tools like these really save time—eliminate trouble—and increase profits on gas, oil and brake line jobs.



IMPERIAL HI-DUTY FLARING TOOL

New sliding segment flaring bar makes this tool far easier to use. Makes precision SAE flares on $3/16$ " to $5/8$ " O.D. tubing. No. 300-F.

Ask for Catalog 124

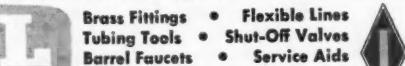


Also a complete line of tubing benders . . . spring, lever and gear types

THE IMPERIAL BRASS MFG. CO., 1217 W. HARRISON ST., CHICAGO 7, ILLINOIS

In Canada: 334 Lauder Ave., Toronto, Ontario

Brass Fittings • Flexible Lines
Tubing Tools • Shut-Off Valves
Barrel Faucets • Service Aids



IMPERIAL DOUBLE-FLARING TOOL

for Brazed Steel and Other Tubing

Overcomes tendency of brazed steel tubing to split when flared. No. 93-FB double flares $3/16$ ", $1/4$ ", $5/16$ ", $3/8$ ", $1/2$ " O.D. tubing. Also single flares. Complete in metal kit.

A man came into the shop the other day and asked me if I knew why his Mercury stalls when the front fenders were shook up and down or when the brakes were applied in forward motion. He had his car to several reputable shops, but to no avail.

After thoroughly checking everything that would possibly be the cause, I rebuilt the carburetor. Still no improvement. In reverse it would not die.

To my amazement, I discovered a leaky fuel pump diaphragm. The fuel would settle to the top of the booster diaphragm and a little side sway or reverse action would slop the gas up to the manifold, then to the booster pump hose and into the engine. The pump did not have a visible leak. Until the vacuum hose was removed, gas would squirt out when the car was shaking violently.

Tom E. Bowman,
Service Manager,
Tinsley Motor Co.,
Lamesa, Texas

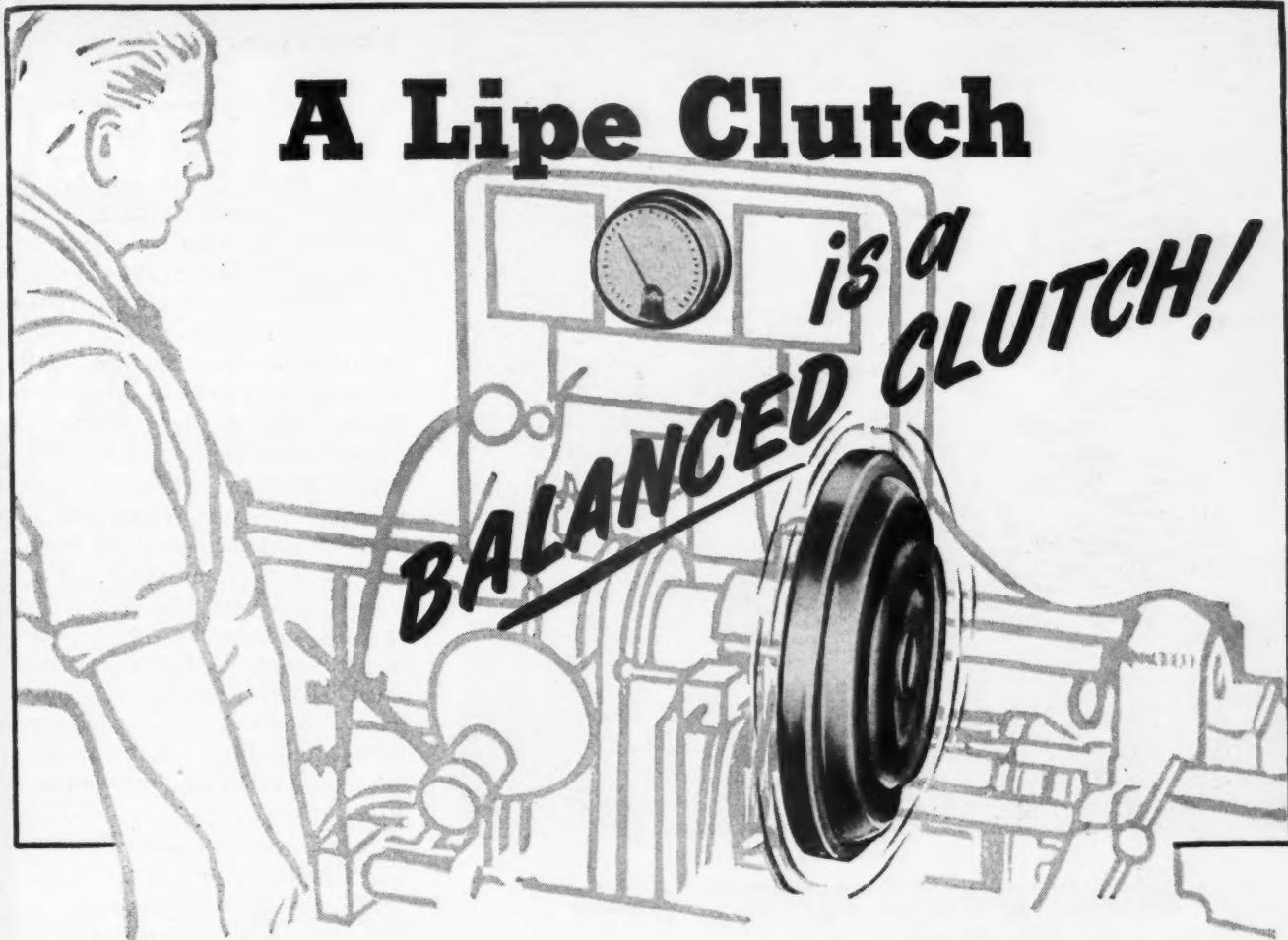
THANKS, Mr. Bowman, for sending the solution to this problem to Readers Clearing House. I am quite certain I would never have thought of that. We're passing it along with the idea it may help others. J. M.

Sludge Forms in Crankcase Despite Regular Oil Change

Can you suggest a remedy for a 1949 Cadillac that sludges the crankcase every oil change? Head gaskets have been changed and an oil filter and electric crankcase ventilator have been installed. I still have to dig through the sludge to get the oil to drain, although a good detergent oil has always been used.

Charles H. Wagner,
Genuine Auto Parts Co.
East St. Louis Ill.

I THINK that you will find that the head gasket is still leaking on the left bank, which is causing your sludge. Remove the left head and, where the oil feeds the rocker arms at the front of the engine, install an extra copper ring on top of the head gasket. Also, I would suggest installing a block sealer in the cooling system.



Keep it that way with Genuine LIPE Parts!

Balance is all-important in engine and drive line parts. Take the pressure plate of a clutch, for instance.

Pinch-hitting with imitation plates often results in unbalance. Vibration is distributed throughout the vehicle, causing costly damage to engine bearings, motor mountings, chassis—in short, a general shortening of the life of the vehicle.

All *Lipe* pressure plates are balanced at high

speed before leaving the factory. Expensive, high-precision equipment, operating under exacting quality-control methods, assures vibrationless performance in the *Lipe* plates you install.

Lipe parts may cost slightly more than imitation parts. *But they pay you dollars more*—in customer satisfaction, repeat business, and the reputation for sound craftsmanship that makes your business grow.

You'll know Genuine *Lipe* Parts by this distinctive green and yellow box . . .

Genuine *Lipe* clutch parts come to your dealer packaged in green and yellow boxes like the one shown here.



If in a larger city, look for this ad in the yellow pages of your telephone directory under "Clutches". Write to the factory for complete data, free service manuals and wall chart, and name of your nearest authorized jobber.



Lipe - ROLLWAY CORPORATION

Manufacturers of Automotive Clutches and Machine Tools
Syracuse 1, N. Y.



New paint spray gun weighs only 15 ounces

Binks Model 26 ideal for many refinishing jobs

Binks Model 26 Spray Gun is especially designed for applications where the gun must produce high-quality finishes, yet be extremely light in weight. It is ideal for stenciling, blending, touch-up work or for occasional spraying of entire automotive units.

This featherweight gun increases efficiency by reducing operator fatigue. It saves money by supplying quality features normally found only

in more costly guns. For example, it has a brass and steel fluid passage to protect the gun body from the corrosive attack of certain paints and fluids.

Model 26 can be used to spray lacquers, synthetic enamels, paints and other finishes and coatings of light or medium viscosity. Send coupon TODAY for details, including prices.

Send for Bulletin 26. This bulletin tells how the featherweight Model 26 Spray Gun saves you time and money. Facts backing each claim thoroughly illustrated. And here you'll find complete specifications with prices included. Send in coupon or SEE YOUR AUTOMOTIVE JOBBER for a copy.

MAIL COUPON today for Bulletin 26

Binks Manufacturing Company
3124-34 West Carroll, Chicago 12, Ill.

Gentlemen: Please rush my FREE copy of your Bulletin 26 describing your new featherweight Model 26 Spray Painting Gun

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

Binks

EVERYTHING FOR
SPRAY PAINTING

REPRESENTATIVES IN PRINCIPAL U. S. & CANADIAN CITIES • SEE YOUR CLASSIFIED DIRECTORY

Corvette

Continued from page 41

duced weight is an economy of operation factor. Plastic bodies are more resistant to shock. A blow that would dent steel bounces harmlessly off the plastic. Damage to a plastic body is localized. Breaks in the body surface can be repaired or complete panels replaced without the services of highly skilled labor.

The body requires no rust-proofing. Plastic surfaces are impervious to deterioration by water. The body is freer from "drumming" and the possibility of squeaks and rattles, since metal-to-metal contacts have been eliminated. Plastics are not as retentive of heat as steel. The Corvette standing in a hot sun still remains at relatively low temperatures.

The Corvette is powered by a six cylinder valve-in-head engine developing 150 horsepower at 4200 rpm and coupled with a Powerglide automatic transmission which is modified to provide full throttle upshift at 55 mph. Compression ratio is 8 to 1 with premium fuel recommended. Curb weight of the car lists 2850 pounds.

The engine is of basic Chevrolet 235 cubic inch design, but introduces new features. Each of three carburetors mounted horizontally in parallel feeds two cylinders. A double-acting fuel pump is equipped with a vacuum booster. The engine carries high lift cams and dual exhaust system for increased performance and higher output. Extra alloy steel exhaust valves, duel valve springs, cast aluminum intake manifold are other refinements in keeping with the high power output of the engine.

The frame is new, containing a welded, box-section cross member of extreme sturdiness. To maintain the full strength of the cross member, the propeller shaft extends over rather than through the center of the "X." Aiding driving

(Continued on page 140)

Best Truck Joint on the Road!

another BORG-WARNER

engineering achievement!

trucks pay out *on the road*—not in the shop!

That's why Borg-Warner designed and perfected MECHANICS Roller Bearing Universal Joints for trucks with *special* emphasis on simpler, speedier assembly and servicing, smoother running balance, longer trouble-free operation.

MECHANICS truck type joint attaches to the transmission independent of the transmission brake attachment. Either joint or drum can be serviced independent of the other, and without disturbing

other attachments or altering original factory balance.

That means *less shop time—more road time*. And that's why so many truck makers, fleet owners and other operators prefer MECHANICS Roller Bearing Universal Joints.

Developed, engineered and produced by Borg-Warner's Mechanics Universal Joint Division, this specially designed truck type joint is another outstanding example of how B-W ingenuity serves the automotive industry—every day.

Most every American benefits every day from the 185 products made by



BORG-WARNER

THESE UNITS FORM BORG-WARNER. Executive Offices, Chicago. ATKINS SAW • BORG & BECK • BORG-WARNER INTERNATIONAL • BORG-WARNER SERVICE PARTS • CALUMET STEEL • CLEVELAND COMMUTATOR • DETROIT GEAR • FRANKLIN STEEL • INGERSOLL PRODUCTS • INGERSOLL STEEL LONG MANUFACTURING • LONG MANUFACTURING CO. LTD. • MARBON • MARVEL-SCHERBLER PRODUCTS • MECHANICS UNIVERSAL JOINT • MORSE CHAIN MORSE CHAIN CO. LTD. • NORGE • NORGE HEAT • PESCO PRODUCTS • REFLECTAL • ROCKFORD CLUTCH • SPRING DIVISION • WARNER AUTOMOTIVE PARTS • WARNER GEAR • WARNER GEAR CO. LTD. • WOOSTER DIVISION

BW ENGINEERING MAKES IT WORK

BW PRODUCTION MAKES IT AVAILABLE

stability, the 51-inch leaf springs at the rear are mounted outside the frame. Front stabilizer is re-positioned and rear shocks are not mounted to the body, but retained at the top by a separate frame cross member.

The radiator slopes rearward 15 degrees with a chrome-plated auxiliary water tank, which serves

as the inlet, mounted along the top of the engine. A 17-gallon gasoline tank is located immediately back of the passenger compartment with the fill under a lid at the rear of the driver. The brake master cylinder is attached to the dash panel in the engine compartment. The foot brake pedal is suspended from the dash panel.

Shift selector of the Powerglide automatic transmission is on the floor at the right of the driver.

Wheelbase is 102 inches with an overall length of 167 inches. The body height at the door is 33 inches and at the top of the windshield 48 inches. The front tread is 57 inches, the rear, 59. Road clearance is six inches.

A folding top fits neatly into a concealed well at the rear of the cockpit. The radio antenna is built into the luggage locker lid. Supplemental storage space is provided by deep pockets in the side doors. Hood latches release from the driver's seat. A tachometer with a totalizer which records accumulated revolutions as well as the current rate of engine revolutions is prominent on the instrument panel. An alarm light for the parking brake is another interesting feature.

The Corvette, now in limited production, is being distributed at the factory level on a "buyer prestige" basis. Advertised delivered price is \$3,490, including handling and federal excise tax.

To get money is difficult, to keep it more difficult, but to spend it wisely most difficult of all. *Unknown.*

Bear Co. Directors Elect Day and Arp to Top Posts

The board of directors of Bear Mfg. Co. have elected Mrs. Will Dammann as chairman of the board, Victor B. Day, left, former executive vice-president of the firm, was elected to the post of president and Lewis B. Arp was selected to fill the vice-presidential position.



Day became associated with the Bear Co. in 1936 as assistant to the president. He was elected secretary and treasurer in 1939 and as executive vice-president in 1947.

Starting in 1925 as a shipping clerk, Arp was elected to the board of directors in 1941 and became general manager of Bear in 1951.

FOR BOTH ENGINE & CHASSIS

Install

**JOHNSON
BEARINGS
BUSHINGS**

YOU

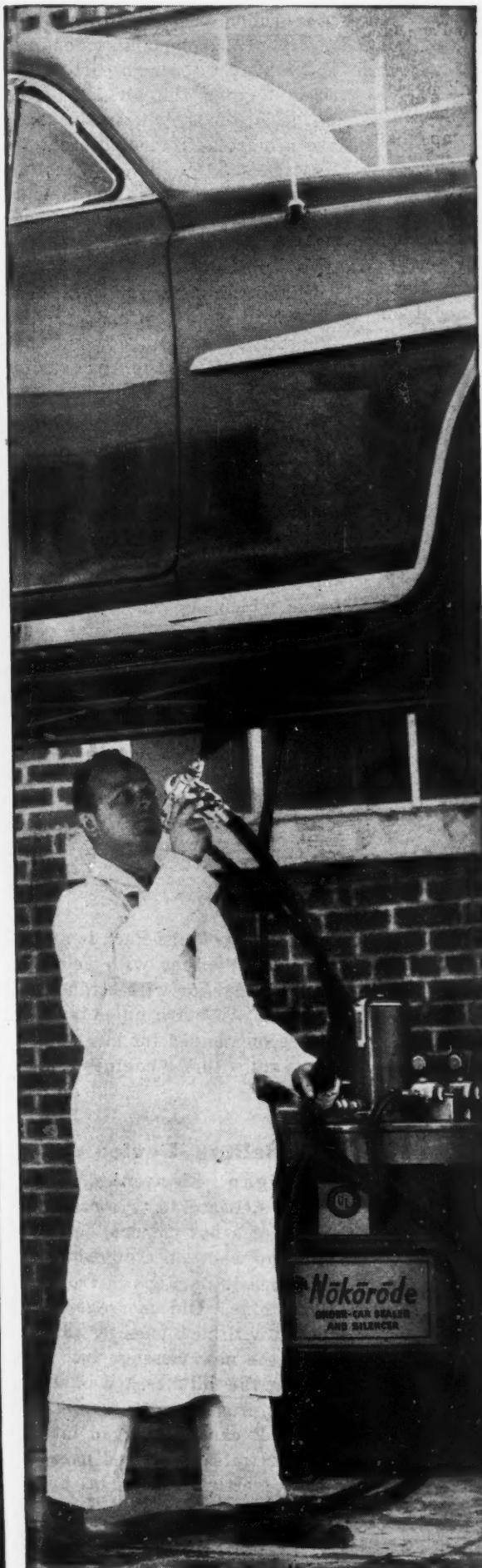
can be sure of quality performance when you install Johnson Bearings. Every one is made to the same specifications as those furnished for original equipment. The Johnson line consists of main, con-rod and camshaft bearings, water pump, starter and generator, automatic transmission, piston pin, steering knuckle, clutch release, spring and other chassis bushings and bearings.

JOHNSON BRONZE COMPANY
455 S. Mill St., New Castle, Pa.

GET IT FROM
YOUR JOBBER

WRITE
FOR
CATALOG

**JOHNSON B
EARINGS**
Sleeve-B Type



Get 50% More Profit on Your UNDERCOATING JOBS



Nōkōrōde

UNDER-CAR SEALER AND SILENCER

1. 50% More Jobs Per Drum

Nokorode is *concentrated*—no excess solvent. You spray Nokorode to $\frac{1}{16}$ " thickness—and it dries to almost $\frac{1}{16}$ ". It's made *entirely* by Lion under U. S. Patent 2393774, assuring *controlled* uniformity, *controlled* quality. Nokorode goes 50% farther, yet costs no more than ordinary undercoatings. That means 50% more profit for you.

2. Easier Application...Lower Labor Cost

Nokorode is *uniform* for smooth application—no troublesome "blobs": . . . flows freely, permitting steady pressure in the gun. There's no lost time due to lost pressure.

Nokorode is *stable*, made of highly compatible materials—won't separate in storage, won't clog guns or hoses. You avoid unnecessary clean-up jobs—you save man-hours and money.

Made and guaranteed by

LION OIL COMPANY



EL DORADO

ARKANSAS

FREE! Details on how to increase undercoating profit.

LION OIL COMPANY, El Dorado, Arkansas
Please send information on higher profits with LION NOKORODE.

Name

Address

City

State

MA-II

New Products Continued from Page 68

metal cleaning equipment. The unit is 5 ft long by 3 ft wide by 3 ft 2 in. high. A pump delivers a gusher-like flow of cold parts cleaning solvent through a flexible metal hose. By turning a selector valve, the flow can also be directed by the operator through another flexible hose with hand-grip valve for quick on and off action. The pump is also used to

circulate fluid in the tank by jet action. A self-cleaning disc type filter is installed at pump discharge when specified.

475. Tire Gun

H. B. Egan Mfg. Co.: The Camel Quick-Weld Tire Gun, for repairing tires without removing them from the wheel, has been put on the market. The gun forces a nat-

ural rubber compound into the injury. This compound vulcanizes and is said to become part of the tire, stopping the air leak from inside. At the same time, the cords are protected from additional injury caused by dirt, water and other foreign objects from the outside. The gun is said to be of special value in repairing tubeless tires, since it does not require special training. The gun contents will repair approximately 50 tubeless tires. On conventional tires, it repairs the tire casing and at the same time forms a strong, clean patch on the inner tube.

476. Muffler

National Engineering Corp. of America: The new Multi-Pack Muffler has a welded steel, core frame which separates the packing into four equal radial compartments around the exhaust passages. The frame secures the steel shavings permanently in place, preventing them from shifting or settling, and allowing heat to dis-



Stock the Complete Line of Stant EVRSEAL Caps and inspect the caps of all cars and trucks. Help your customers forestall trouble and add to profits.

Illustrations show popular and representative members of the *Stant Complete Quality Line* . . . R-5 . . . R-12 EVRSEAL Pressure Type Radiator Caps . . . SO-61 . . . SO-67 EVRSEAL Oil Filler Caps . . . G-50 . . . G-55 DUAL-LOC Locking Gas Caps . . . G-20, G-21, G-22, G-25 EVRSEAL Gas Caps, R-3 EVRSEAL Non-Pressure Underhood Radiator Caps. *Reap the advantages of one sure cap line.*

Engineered Car manufacturers and their engineers have confidence in 100% tested EVRSEAL Caps. Stant keeps pace with their engineering improvements. You can share the car manufacturers' reliance on Stant.

Packaged Colorful package . . . application chart . . . clearly numbered . . . easy to find the cap you want.



easier to sell

Illustration shows effective Cap Cabinet and Oil Filler Cap Merchandise. Write for catalog and 3-way Stant benefits . . . naming your jobber.

STANT MANUFACTURING CO., INC.
Connersville, Indiana



Used on America's Finest Automobiles as Standard Equipment

Continued from Page 68

sipate evenly. Multi-Pack is available packed either with selected steel shavings, or with strands of Fiberglas. An extra quiet tandem type, recommended for late model, heavy cars with V-8 engines is also available.

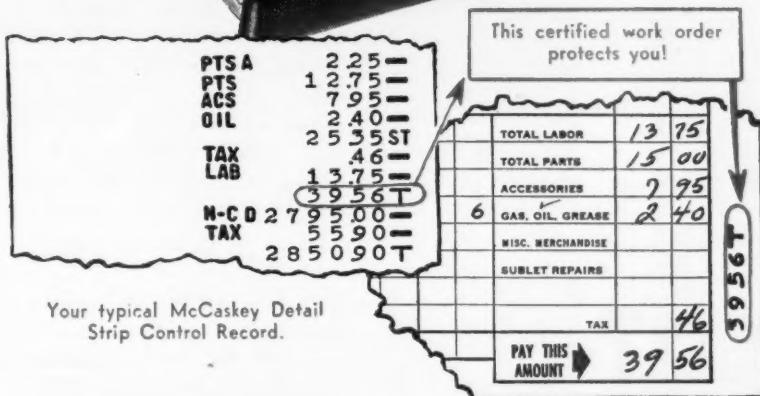
477. Selling Device

Michigan Electronics, Inc.: Message Repeater, a tape recorder the size of a box camera, delivers a message when an automobile or person passes or stops in front of the machine. Old messages are replaced with new ones by simply talking the new message into the machine; the old message is automatically erased as the new is recorded. It can be plugged into a socket or wall outlet, and used to repeat advertising messages automatically in the service department or showroom.

(Continued on page 148)

YOU AND A McCASKEY CASH REGISTER SYSTEM

Will Really Control Your Transactions in Cars, Parts and Repairs



Practical Registering Capacity

You can register car sales to within 1¢ of \$10,000 in one McCaskey register ring-up...

Certified Records

You can have certified sales slip, work order and paid-out records of daily transactions—identical with your register printed detail strip records and positive proof of correct amounts received, paid and recorded.

Item-Added for Accuracy

You can have an item-added breakdown of transactions including more than one item—listed and totalled individual amounts for parts, time and other items sold, from sales slips and work orders.

YOU OBTAIN IN THE McCASKEY CASH REGISTER SYSTEM A SIMPLIFIED METHOD THAT HAS ACTUALLY "GROWN UP" WITH GARAGE AND AUTOMOTIVE EXPERIENCE DURING THE LAST 50 YEARS!

McCaskey Cash Register Systems • Charge Account Control Systems • Sales Books and Continuous Forms • Fire Protection for Vital Records • ALL offer you the benefits of simplicity, completeness of usable records and protection against losses.

McCaskey Register Company, Alliance, Ohio

SEND INFORMATION ON THE PRODUCTS CHECKED:

McCaskey Cash Register System
 McCaskey Charge Account Control System

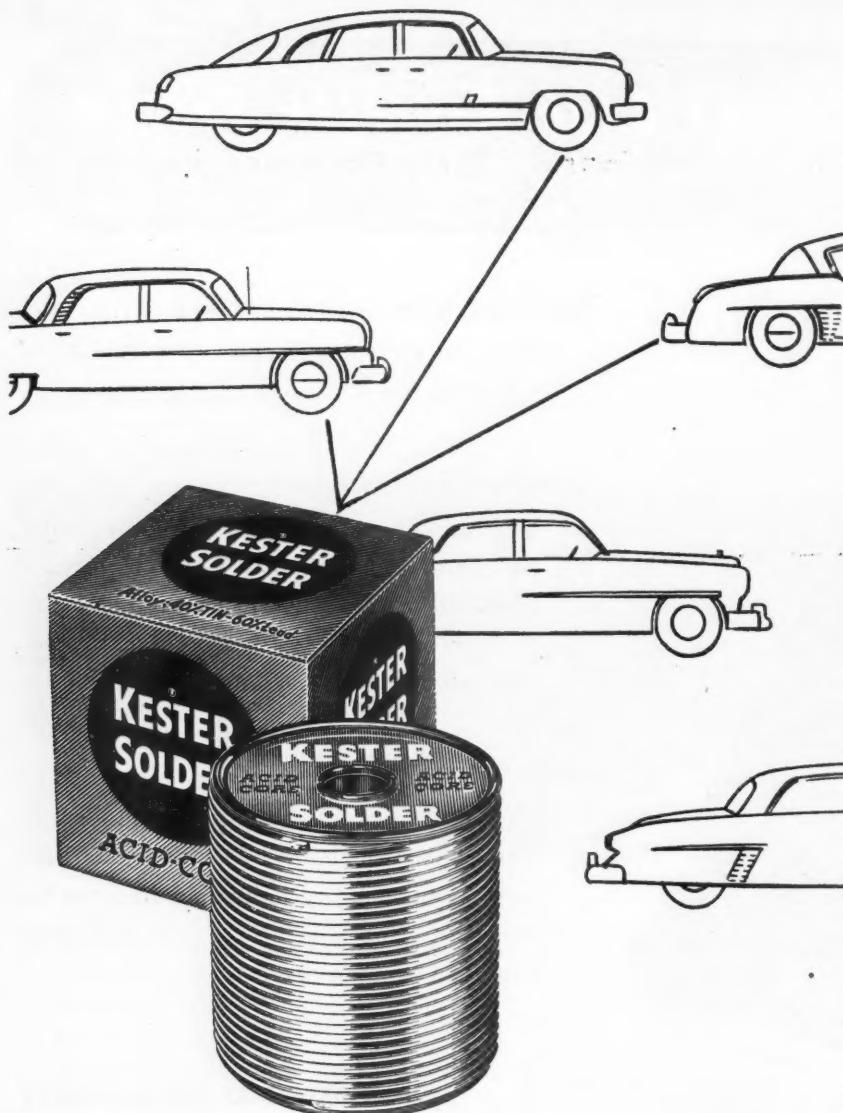
McCaskey Steel Safe
 McCaskey Sales Books and Forms

NAME..... ADDRESS.....

CITY..... STATE.....

McCASKEY REGISTER DIVISION, Victor Adding Machine Co., ALLIANCE, OHIO

In Canada, Galt; in England, Watford



Anti-Friction . . .

Continued from Page 53

should have no end play as end play in these bearings usually results in the transmission jumping out of gear or cause a noticeable click when starting a car in motion.

Clutch throwout bearings and water pump bearings are usually the sealed type. They are lubricated at the factory. No attempt should be made to wash or service this type bearing.

Some axle shaft bearings control the radial as well as the thrust loads imposed on the rear axle. Other than by inspecting the rollers or balls and by feeling for rough spots the only check that can be made is end play. A new bearing of this type is designed to have between .008 to .010 inch end play. Remember when inspecting this type of bearing that end play is permissible.

The worst bankrupt in the world is the man who has lost his enthusiasm. H. W. Arnold.

Wheel bearings should be removed and inspected for pits and scoring approximately every 10,000 miles. Fresh grease should be applied when reinstalling. This is best done with a special wheel bearing packer.

When removing a bearing use the proper puller. If one is not available, the bearing may be driven off with a brass drift. Place one end of the brass drift on the inner cone and tap lightly, then tap the other side of the cone being careful not to cock the bearing on its shaft.

Generally the most common cause of bearing failure is lack of lubrication or faulty installation. Only a few minutes are required to give a bearing a thorough check.

A quick check is to clean the bearing in a suitable solvent and examine for any discoloration, cracks or pits, then lubricate with a light engine oil and rotate the bearing to determine if any rough or tight spots are present. (Caution avoid spinning a bearing with air pressure, to prevent scratching the bearing surfaces.) Finally check for excessive end play and make sure bearings are within manufacturer's specifications.

Your best automotive salesman— The Country-Side Unit



YOUR BIGGEST MARKET — that's the Country-Side Market, made up of the 19,000,000 families who live in towns of less than 10,000 people, in crossroads villages and on farms. These people buy more than half the nation's cars, account for the biggest slice of the service business, support the majority of the nation's dealers and repair shops.

IT TAKES TWO KINDS of magazines to reach and sell the whole Country-Side Market—a farm magazine for the farm customers, a town publication for the non-farm customers. For years Farm Journal, America's largest, most influential farm magazine, has been the biggest automotive salesman in the farm side of Country-Side America.



THE TOWN INTERESTS of Country-Side America are served by Pathfinder, the Town Journal. This is the *only* dual appeal publication aimed at Main Street people. Together, as the Country-Side Unit, Town Journal and Farm Journal reach and sell over 4,200,000 of the best families in your biggest market.



DEALERS GET WHAT THEY WANT from advertising support in the Country-Side Unit—coverage among their own best customers and prospects like a local newspaper. Automotive manufacturers in turn get what *they* want—more of the best customers in the whole Country-Side Market.



THE COUNTRY-SIDE UNIT . . .

4,200,000 of the best customers
in America's biggest automotive market
SELLS THE WHOLE
COUNTRY-SIDE MARKET

Calendar of Coming Events

Dealers Meetings

Nov. 18—Automotive Trade Assn. of Maryland, annual meeting, Lord Baltimore Hotel, Baltimore.

Nov. 18-19—Oklahoma Automobile Dealers Assn., Mayo Hotel, Tulsa

Nov. 30-Dec. 2—Idaho Automobile Dealers Assn., Boise Hotel, Boise

Dec. 3—Utah Automobile Dealers

Assn., Newhouse Hotel, Salt Lake City

Dec. 4—Oregon Automobile Dealers Assn. Convention, Multnomah Hotel, Portland

Jan. 9-13, 1954 — NADA Convention, Miami Beach, Fla.

Jan. 30-Feb. 7, 1954—Greater St. Louis Automotive Assn., Inc., Exposi-

tion Hall, Kiel Auditorium, St. Louis
Feb. 20-28, 1954—41st Detroit Auto Dealers Assn. Auto Show, State Fair Grounds, Detroit

Mar. 13-21, 1954—Chicago Auto Show, International Amphitheater

Apr. 17-25, 1954—Seattle Auto Show, Seattle Civic Auditorium

May 10-11, 1954—Missouri Automobile Dealers' Assn. Convention, Muehlebach Hotel, Kansas City, Mo.

Sept. 12-14, 1954—New York State Automobile Dealer's Convention, Saranac Inn, Saranac, N. Y.

Automobile Shows

Jan. 9-13, 1954 — NADA Convention, Miami Beach, Fla.

Jan. 9-13, 1954—7th Annual NADA Shop Equipment Exposition, Portico Annex, Municipal Auditorium, Miami Beach, Fla.

Jan. 9-13, 1954 — NADA Truck Equipment Exposition, Miami Beach, Fla.

Jan. 30-Feb. 7, 1954—Greater St. Louis Automotive Assn., Inc., Exposition Hall, Kiel Auditorium, St. Louis, Mo.

Feb. 8-11, 1954—Automotive Assn. Accessories Manufacturers of America Exposition, Navy Pier, Chicago, Ill.

Feb. 20-28, 1954—Second Annual World Motor Sports Show, Madison Square Garden, New York City

Mar. 13-21, 1954—Chicago Auto Show, International Amphitheater

Apr. 17-25, 1954—Seattle Auto Show, Seattle Civic Auditorium

General Motors Resumes Hydra-Matic Production

Resumption of production of Hydra-Matic transmissions, first since fire destroyed GM's Detroit Transmission Division plant at Livonia, Mich., last Aug. 12, was announced by Harlow H. Curtice, president of General Motors.

Initial production of Hydramatics at the Riopelle plant is scheduled to reach 1,200 per day in November, Curtice said. Riopelle will produce Hydra-Matic transmissions for defense and commercial purposes. The first units will be made available for Army trucks. Commercial units will go to competitive automobile manufacturers and GM car and truck divisions using the transmission.

"The Riopelle plant is exclusively an assembly operation of Hydra-Matic parts produced by our own divisions and outside suppliers. It is separate from our Willow Run activity because there we will manufacture parts as well as assemble the transmission," Curtice added.



COVERS THE BIG REGULATOR REPLACEMENT MARKET

Here's a small sized package that holds big profits for you—the American Bosch "3 for ALL" Generator Regulator Kit! You can service nearly every popular car with one of these 3 American Bosch Regulators. They're packed complete with replacement data and installation instructions in an attractive display carton...a sales-active stock that requires only a few inches of shelf space to make a lot of service sales and money for you!

American Bosch Generator Regulators are a natural in the big, Regulator replacement market... millions of original equipment installations have proved their trouble free, long run performance. Exclusive, American Bosch features assure greater stability, guard against runaway voltage, protect both generator and battery. And sales-active American Bosch prices are *right* for replacement volume. Get set for sales NOW with this profit-making "3 for ALL" Kit. Ask your Jobber for details. American Bosch Corporation, Springfield 7, Mass.

AMERICAN BOSCH



CASCO

Extra Profit Offer!

A small investment gets you a lot!

ORDER Assortment Card L-53

consisting of:

- 2 Elements @ \$1.05 each list
- 3 Pop-Out Units @ \$1.55 each list
- 2 Illuminated Well Assemblies @ \$1.30 each list
Fair Traded

Your Total Cost . . . SPECIAL \$5.00

Your Total Selling Price . . . \$9.35

INTRODUCING the New Casco Long Knob LIGHTER

Here for the first time is a modern, streamlined replacement pop-out unit designed with ample finger grip length for lighter's recessed in dashboards. It's a necessity for many late model cars, including 1954 models and a more convenient style for all cars, new or old.



Priced and
Merchandised
for
Service Stations
and Car Dealers

Self-Selling
Display
Wraps Up Fast,
Easy Sales

You Make \$4.35
Over 46% Profit

OFFER
LIMITED!

ORDER EXTRA PROFIT ASSORTMENT CARD L-53
TODAY...THROUGH YOUR JOBBER!

CASCO

PRODUCTS CORP., BRIDGEPORT, CONN.

New Products Continued from Page 142

478. Locking Wrench

Utica Drop Forge and Tool Corp.: Utica No. 92 works like the usual adjustable wrench, but can also be used as an open end wrench and vise wrench. For open end wrench, adjust lightly to the work . . . even set by rule. Push lightly on locking lever. The jaws

lock solid. To unlock, simply push button. For vise wrench, adjust jaws lightly on work, then move the lever off the handle and pull the hinge-pin about $\frac{1}{4}$ in. Rotate the lever clockwise until jaws clamp vise-tight. To release, turn the lever counter-clockwise and snap the lever back over the wrench handle.

forget old-fashioned models!

THIS NEW MODEL GIVES YOU...

- **More Power** The most powerful soldering gun ever built. Four choices, from 100 to 275 watts, give you the right tool for the job, whether it's heavy work or light.
- **New Dual Heat** On some models, gives you extra capacity when you need it, and increases tip life to save you money.
- **Better Balance** New Weller Soldering Guns "float" in your hand, cutting fatigue, making your work easier, faster, and better.
- **Faster Heat** All new Weller Soldering Guns heat in 5 seconds—almost the instant you press the trigger! No waiting!
- **More New Uses** Two new Weller accessory tips let you use your Weller Soldering Gun for extra cutting and smoothing jobs.
- **Dual Spotlights** Pre-focused beams light your work, wherever it may be, eliminate the need for juggling a flashlight.

Better from Grip to Tip!

Weller
SOLDERING GUNS
801 Packer Street • Easton, Pa.

ORDER FROM YOUR DISTRIBUTOR OR WRITE DIRECT FOR CATALOG

479. Paint Pamphlet

General Electric Company: A new pamphlet entitled "Repainting Automobile Finishes Protected With Silicone Polishes" has been written especially for professional auto refinishers. It tells how to produce smooth, well adhering paint jobs on cars that have previously been given a water repellent and heat resistant gloss with the new silicone-containing polishes that car owners use. The new pamphlet details the cleaning, sanding and wiping steps necessary to remove the silicone and obtain good repainting results.

480. Cooling System Manual

E. I. DuPont de Nemours & Company, Inc.: The "Zerone-Zerex" Antifreeze Division announces "The Serviceman's Manual on the Automotive Cooling System," illustrated in full color. It tells how the cooling system works; gives a method for selecting proper coolers; shows how to chemically and mechanically clean the system; how to prepare the system for wear and summer driving; and how to find and correct trouble spots.

481. Drum Lathe

Ammco Tools, Inc.: A new brake drum lathe named Safe-Turn has been introduced by this company. The lathe features a $2\frac{1}{8}$ in.

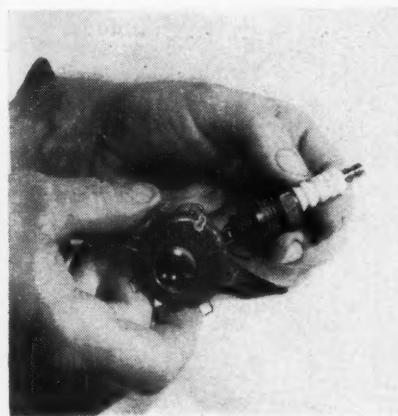


spindle, and a feed which permits adjustment from .002 in. to .020 in. while cutting. Other features claimed for the Safe-Turn include: self-aligning boring bar; protective boot and spindle; cross slide

and lead screw; double taper steel arbors; and safety-enclosed grinding wheel. It is furnished complete with adaptors for passenger cars, light trucks, and most medium trucks.

482. Gap Gage

Electric Auto-Lite Company: The Spark Plug Division of the Electric Auto-Lite Company has announced a new gap gage featuring a four power glass magnifier and two wrenches for adjusting all types of side electrodes. All



popular gap setting gages are included. The gap gage is constructed of plastic for lightness and durability.

483. Drill Attachment

Jaco Devices Co.: The E-Z Cut drill attachment, for $\frac{1}{4}$ in. portable electric drills, converts the drill into a power saw which can be used on all kinds of metal, wood, plastic and composition board. Other cutting tools include chisels, gouges, jig saw and jig saw table, files and rasps. It can be installed and removed without special tools or alteration of the drill. A choice of adapter rings makes it suitable for most $\frac{1}{4}$ in. standard duty electric drills having an rpm of 1700-3000 and an amperage power rating of 1.7 or more.

484. Exhaust System

Car-Mon Products Co.: A new mechanism that automatically closes the door of the floor fixture is now available with all underfloor carbon monoxide exhaust systems. The mechanism is constructed so that as the exhaust

tube is retracted into the floor receptacle, a self-acting trip securely closes the floor panel. This eliminates the danger of tripping or falling, breaking or bruising of tires and the accidental smashing of open doors. In addition to the concealed, underfloor carbon monoxide exhaust system, Car-Mon also manufactures an overhead disappearing system and an overhead hanging type system. All parts are of 18 to 22 gauge steel, heavily galvanized to prevent rusting. From 1 to 24 units can

be exhausted with a single fan of suitable capacity arranged to discharge through either side or roof.

485. Towing Hitch

American Chain and Cable Company, Incorporated: The Manley Division of the American Chain and Cable Company announced the marketing of the Manley Heavy Duty Towing Hitch, No. 2209, which features telescoping, shock-absorbing tubular steel

(Continued on page 150)



What's the Price of a Puddle?

A puddle that leads to brake failure can be mighty costly. But for the driver whose car is equipped with Fused Fabric Brake Linings, morning dampness and rain-drenched roads are never a hazard to brakes. Fused Fabric's unique patented construction makes it practically impervious to moisture. Actual laboratory and highway tests, made with linings soaked in water, have proved conclusively Fused Fabric's greater safety. Proof, again, that Fused Fabric is a friction material without equal.

RUSCO
Fused Fabric
BRAKE LINING

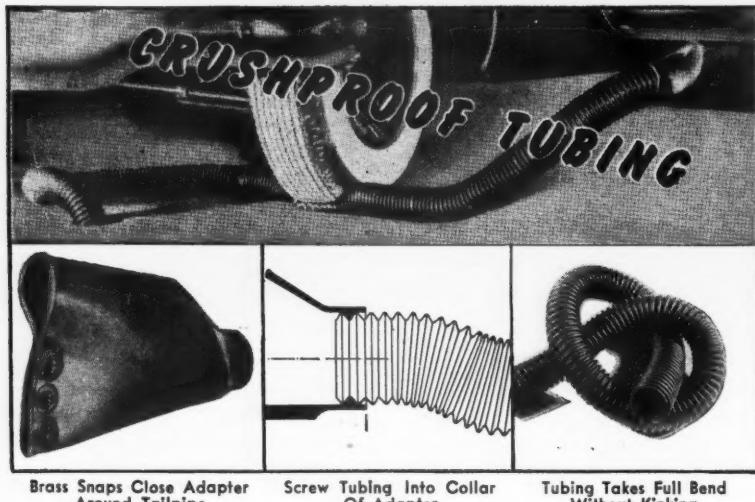
GET IT FROM
YOUR JOE'S

THE RUSSELL MANUFACTURING COMPANY, MIDDLETOWN, CONN.

DEALERS . . . GARAGE MEN 250,000 Mechanics Prefer CRUSHPROOF TUBING

to Carry Off Exhaust Fumes from Cars in Garages
BECAUSE:

1. New Extrusion Process Improves It 10 Ways . . . It's Now Siliconized.
2. Car wheels run over It Without Damage . . . Springs Back to Shape Instantly.
3. All neoprene rubber . . . no wires or coils in tubing.
4. Takes 300-plus heat.
5. If used in underfloor systems, can be rolled up easily and put away.
6. Unaffected by oil, water, fumes.
7. Nothing to rust or scratch cars.
8. No thin spots in tubing . . . new process guarantees uniform wall.
9. All-new spiraled tubing screws into new spiral-collared adapter for use over deflectors on tailpipes . . . holds tightly.



NATION'S LARGEST MAKER OF RUBBERIZED TUBING FOR GARAGE EXHAUST SYSTEMS

Buy in 50-foot rolls and cut to lengths needed by each mechanic

OR

Order in Continuous Lengths, with no vulcanized joints, of 8, 10 or 11½ feet.

ORDER DIRECT FROM FACTORY, OR WRITE US FOR NEAREST JOBBER

(Price is same either way)

Address all mail to:

CRUSHPROOF TUBING CO.
P. O. Box 796, Cleveland 22, Ohio

OFFICES: 858-60 Leader Building, Cleveland. Superior 1-3353.

FACTORY: North Baltimore, Ohio.

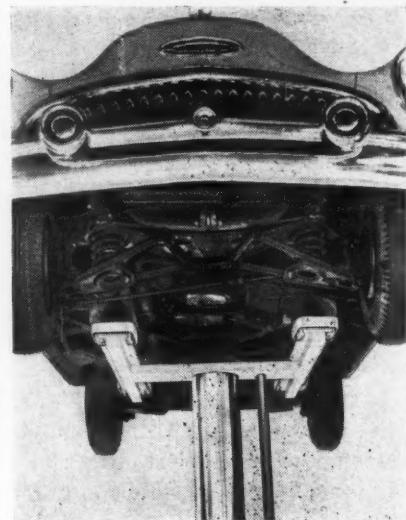
New Products . . .

Continued from Page 149

arms that allow hook-up at any angle. It is said to have complete turning safety (wrecker and towed vehicle cannot touch), automatic road centering, fully controlled back-up operation and regular brake application at open highway speeds without jarring or bumping. It gives a 36 inch coupling distance between vehicles. The entire unit weighs 186 lbs.

486. Frame Lift

Curtis Mfg. Co.: The Curtis Single-Post Frame Lift has a capacity of 8000 lb. Four metal lifting pads accommodate approximately 95 per cent of all 1940 and later models of conventional passenger cars. One set of special



adapters, required for use with certain frameless cars, is furnished as standard equipment with each lift. It is available in both full and semi-hydraulic types with built-in safety retard valve and optional low-level oil safety valve.

487. Tool Catalogs

Heller Bros. Co.: Six new catalogs showing the complete line of Heller files and tools are now available. All are two-color books completely illustrated, with separate price lists prepared for each catalog. The catalogs include the 64-page full-line file catalog. It has 200 illustrations and describes

(Continued on page 152)

"I get year around top performance with Weather-Balanced SCOTCH Masking Tape No. 202!"

REG. U. S. PAT. OFF.
SCOTCH BRAND



John R. Schmitz of Coast-in-Pontiac Co., Washington, D. C., knows that a masking job won't wait for ideal weather . . . that he has to use a tape that's **workable** rain or shine—**dependable** in summer or winter. He writes:

" . . . I speak from experience when I say that 'Scotch' Brand Masking Tape No. 202 is the best I have ever used.

"During the many years I have been in this business, I have had a chance to test many kinds of masking tape. One of the biggest problems we have here in Washington, D. C., is the weather. It's humid a lot of the time, hot and muggy in summer and damp in

winter. The only tape I've found that works perfectly in this climate is 'Scotch' Brand. It's never failed me in all the time I've used it, no matter what the weather. In fact, 'Scotch' Brand Masking Tape works so well here in Washington, D. C., that for a while I thought it was manufactured especially for this climate! But not long ago I got to talking with a refinisher from out in Montana where it's dry and very cold in the winter, and he told me that 'Scotch' Brand worked just as well out there. It really is a weather-balanced tape, all right. I've never had a masking failure with it."

Yes, that's **real** experience talking . . . experience you can profit from! Stock and use the complete 3M Refinishing line.



The right start for a perfect finish!

"SCOTCH" MASKING PRODUCTS work together to give you perfect, trouble-free masking every time.

OUR SANDING TOOLS save time, save work, increase efficiency. Order and use the "3M" Back-Up Pad Assembly, "3M" Disc Feather-Edger, and the "3M" Cone Mandrel.

"3M" ABRASIVES stay sharp longer, sand easier—completely outperform all others.

"3M" ADHESIVES are used on top automotive production lines. Stock and use these specialized adhesives for sealing and holding repairs.



Made in U.S.A. by Minnesota Mining & Mfg. Co., St. Paul 6, Minn.—also makers of "Scotch" Brand Pressure Sensitive Tapes, "Scotch" Sound Recording Tape, "Underseal" Rubberized Coating, "Scotchlite" Reflective Sheeting, "Safety-Walk" Non-slip Surfacing, "3M" Abrasives, "3M" Adhesives. General Export: 122 E. 42nd St., New York 17, N.Y. In Canada: London, Ont., Can.

There are HUNDREDS of Successful Parts in the Wohler Line

Wohler
Corporation
LANSING 5 MICHIGAN

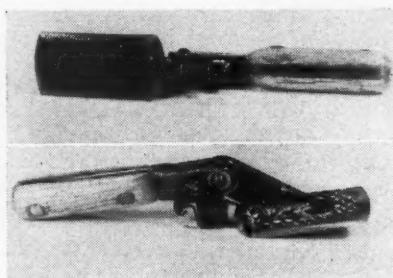
New Products . . .

Continued from Page 150

1,686 American Pattern, Swiss Pattern and Milled Curved Tooth files and rasps in addition to special holders and handles for files. Details on file cuts and uses and instructions for selecting and ordering are given. Other catalogs describe Nucut American Pattern files, Heller Swiss Pattern files, American-Swiss Swiss Pattern files and American-Swiss American Pattern files.

488. Metal Hammer

H. Otis Cain: A new automobile body "spring" hammer that raises the low metal and hammers the high metal down is being marketed. It is said to cover more metal in one stroke, with no jar or shock to the hand. The spring



action hammer will pick up dents by holding the sharp corner of a block against the dent to be raised, and then hammering flat on the top side.

489. Squeak Stopper

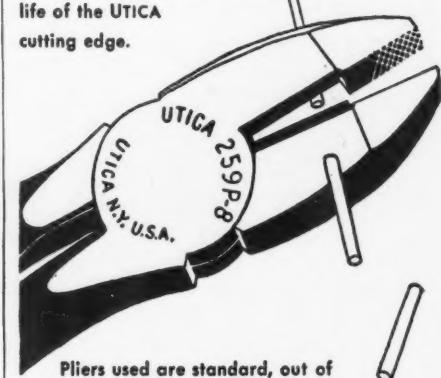
Permatex Co.: A new stainless, colorless rubber lubricant has been developed by Permatex to stop rubber automotive door squeaks. The new "Rub-Lub" liquid is also said to be effective for rubber refrigerator door parts and other rubber components used in industrial, business and household equipment.

490. Battery Charger

Franklin Transformer Manufacturing Company: A new 6/12-volt charger-tester Model 154 is now being marketed by this concern. According to the manufacturer,

100,000
CUTTINGS WITHOUT FAILURE
PROVE LONG LIFE OF
UTICA TOOLS

All across the country where this automatic edge tester has been demonstrated with UTICA pliers, thousands have marveled at the rugged, long life of the UTICA cutting edge.



Pliers used are standard, out of UTICA stock, and the wire is .080 hardened steel plow wire (Rockwell "C" 47 Tensile Strength 224,000 P.S.I.). UTICA standards require at least 100,000 cuttings—yet this minimum is often exceeded in our continuing laboratory tests.

The secret is UTICA's own process of extra hardening the cutting edges. Ask for UTICA, and get the benefit of longer tool life.

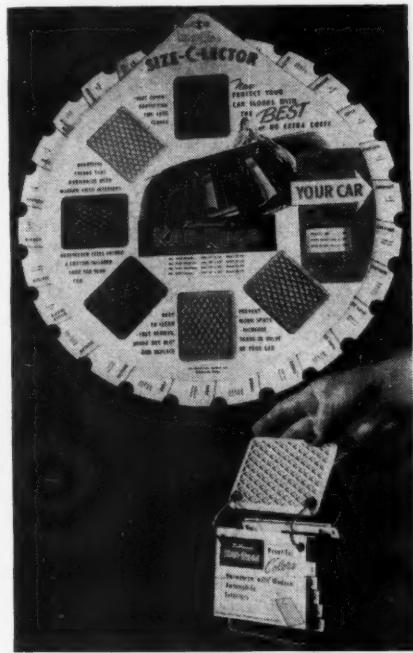


In Canada: ADIAM TOOL & SUPPLY CO., LTD., Montreal

the unit charges at fast or slow rates on either 6 or 12 volt batteries. It is equipped to test any battery type installation. A new testing system enables the operator to check for bad cables and cable connections, as well as battery conditions in all installations . . . including concealed batteries or batteries with covered (or sunken) intercell connectors.

491. Floor Rug

Wooster Rubber Company: This company has released two new point-of-sale displays. One display, named Size-C-Lector, names the right size Kar-Rug for front and rear floors for all car models at the flip of a dial. The second unit, the Kar-Rug Flip-Over Dis-



play, is a miniature unit for showroom, garage and service station counters. It contains six assorted miniature Kar-Rugs with suggestions which appear as the little rugs are turned.

492. Pull Kit

H. K. Porter, Inc.: This company announces a Pull Kit for in-place repair operations with hydraulic jack power. This standard unit kit includes a chain pull collar and chain pull head which attaches to the jack body and ram. The new design clamps are said to attach easily and firmly to flat or channeled metal without the necessity of welding or brazing a thick "pull spot" on the

metal. One jaw reverses to clamp over and beyond a channeled edge. A 6 ft pull chain completes the kit.

493. Tune Up Pack

Standard Motor Products, Inc.: A special Tune Up Pack consisting of point sets, condensers, coil, rotor and distributor heads is being made available for Chevrolet, Ford and Plymouth cars. Each Tune Up Pack also contains promotional and display material and a Tune Up Service Manual con-

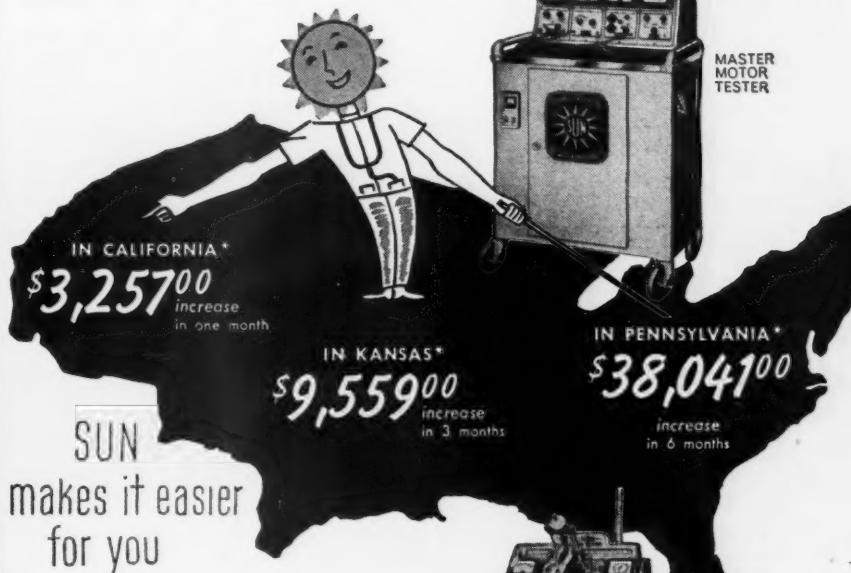
taining service information.

494. Revolving Bins

Lyon Metal Products, Inc.: New Lyon revolving bins are complete storage units, ideal for bulk stock, parts, nuts, bolts, screws, and so forth. Shelves revolve in either direction on ball bearing rollers. Each shelf has five permanent dividers and continuous label holders. Additional dividers can be added. Shelves are stabilized to

(Continued on page 154)

in EVERY part of the country...
in EVERY size service shop...



...to greatly increase
parts and labor sales

The use of SUN Scientific Automotive Testing Equipment can result in a remarkable increase in needed labor and parts sales as indicated in these examples selected from among thousands of dealers and service shops all over the country. Just as important is the customer confidence gained through the elimination of costly comebacks and chronic complaints. Your SUN Equipment gives the service salesman an extra selling tool that helps him to show the car owner exactly where, why and how *needed* repairs should be made. The SUN Line is complete—enabling any dealer or service shop to have exactly the right units to fit *his* shop needs. Newly engineered 6-12 volt equipment is now available or your present equipment, through the SUN Modernization Program, can be quickly converted to serve vehicles of both voltages. Talk to your nearest SUN Representative or write TODAY directly to SUN.

send for the New SUN Scientific
Automotive Testing Equipment CATALOG

*names on request





New Products . . .

Continued from Page 153

prevent sagging when unevenly loaded. Broad base prevents tipping. The bins come in four-shelf or seven-shelf units.

495. Display Board

DeVilbiss Co.: A new display board has been designed to attract customers and is for use on the counter, floor or in the window of automotive jobbers, paint dealers, etc. Quickly assembled without tools, the unit is 31 in. high, 32 in. wide and 18 in. deep. The display board is perforated masonite which gives flexibility and variety in arranging displays of equipment.

496. Timing Gear Oil Line

Everhot Products Co.: A Bundyflex timing gear metal oil line for all models of Fords and Mercurys from 1949 through 1953 is being manufactured. One end of this line is attached to the bottom of the oil filter and the other to the timing gear box. Lubrication starts the instant oil pressure is applied by the engine; gears are said to operate in a continuous bath of oil from the first turn of the shaft. The oil line is ready formed; needs no bending or shaping.

Classified Advertisement

WANTED—Automobile before 1930. Premium for condition; spare parts for Buick 1927. All old catalogs and instructions. Whitlock Farm, Bethany, Conn.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, AND CIRCULATION REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39, United States Code, Section 233)

Of CHILTON'S MOTOR AGE, published monthly at Philadelphia 39, Pa., for October 1, 1953.

1. The names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, G. C. Buzby, Sunset Avenue, Chestnut Hill, Philadelphia, Pa. Editor, Frank P. Tighe, 1017 Drexel Avenue, Drexel Hill, Pa. Managing editor, Arthur H. Nellen, Jr., 40 No. Ann Road, Broomall, Pa. Business manager, G. C. Buzby, Sunset Avenue, Chestnut Hill, Philadelphia, Pa.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual member, must be given.) Chilton Company, Chestnut and 56th Sts., Philadelphia 39, Pa.

Holders of more than 1% of the capital stock outstanding of Chilton Co.: Mary M. Acton, 260 Sycamore Avenue, Merion Station, Pa.; Mrs. Beulah Fahrendorf, 59 Drake Road, Scarsdale, New York; Dorothy S. Johnson, 1115 Fifth Avenue, New York, New York; Mabel M. Musselman, 260 Sycamore Avenue, Merion Station, Pa.; John Blair Moffett, 1608 Walnut Street, Philadelphia, Pa.—Agent for J. Howard Pew, J. N. Pew, Jr., Mabel P. Myrin, Mary Ethel Pew; Ethel G. Breen, Trustee u-w of Charles W. Anderson, Old Greenwich, Conn.—Beneficiaries: Robert C. Anderson, Percival E. Anderson, Charles W. Anderson, Jr., Annie L. Clark; Tradesman Land Title Bank and Trust Company, Trustee Estate of James Artman, Deceased, 100 S. Broad Street, Philadelphia, Pa.—Beneficiaries: Franklin Artman, Vera Watters, Alvin C. Artman, Elizabeth J. Artman, Marion A. Pratt, George H. Pratt, by assignment, Edwin Moll, by assignment; Alberta C. Sly, Executrix u-w of Frederick S. Sly, 149-40 35th Avenue, Flushing, Long Island, New York; Beneficiaries: Albert C. Sly and John E. Sly; Mabel M. Musselman, Mary M. Acton & John Blair Moffett, Trustees u-w of Clarence A. Musselman, Deceased, 1608 Walnut Street, Philadelphia, Pa.; Charlotte M. Terhune, 160 E. 48th Street, New York, New York.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required from daily, weekly, semiweekly, and triweekly newspapers only.)

G. C. BUZBY, Publisher

Sworn to and subscribed before me this 21st day of September, 1953.

PHILIP J. SHIRE, JR.

(My commission expires January 7, 1955.)

[SEAL]

OVERSIZE

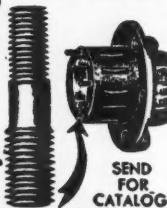
REAR WHEEL STUDS

for all Trucks

Order from Your Jobber



CHAMP-ITEMS, Inc.
6191 Maple Ave.
St. Louis 14, Mo.



SEND FOR CATALOG

WEED

SELL • SERVICE •

• REPAIR •
TIRE CHAINS

Always Recommend

WEED AMERICAN
V BAR-REINFORCED

The Best Buy in

TIRE CHAINS



Reinforcing Bars on Cross
Chain Provide More Traction,
Greater Safety, Longer Durability

WOLF'S HEAD MOTOR OIL

Provides all three:

100% PURE PENNSYLVANIA
SPECIALY REFINED
SCIENTIFICALLY FORTIFIED



**“...Upwards of
80 per cent of all
Gulf Oil employees ...”**

S. A. SWENSRUD
President, Gulf Oil Corporation



“I have no hesitation in saying I believe it is a sound thing for our industry to support the Government’s Payroll Savings Plan and to encourage our employees to put at least a substantial part of their savings into U.S. Savings Bonds. Upwards of 80 per cent of all Gulf Oil employees save part of each pay in E Bonds. This type of thrift is good for the nation as well as for the individual.”

At the close of 1952—

- Individual Americans owned Savings Bonds totaling more than \$49 billion, cash value.
- Series E Bonds outstanding—the kind bought by Payroll Savers—were more than \$600 million greater than on May 1, 1951, when the bonds issued in 1941 started to mature.
- Of the \$4.8 billion Series E Bonds which matured between May, 1951, and December, 1952, more than \$3.6 billion (75%) were held beyond maturity, under the automatic extension plan.
- More than 77 million units of Series E Savings Bonds were bought by individuals in 1952—13% more than in the previous year.
- During every one of the past 21 months, redemptions of

unmatured Series E Bonds have been well under 1% of the total amount outstanding.

- 1953 figures should be even better—more than 1,000,000 Americans joined the Payroll Savings Plan in 1952, and thousands, literally, are enrolling every day.
- Never before in the history of this or any other country have employed men and women held a reserve purchasing power of \$49 billion in government securities—a cushion against emergency, a check on inflationary tendencies.

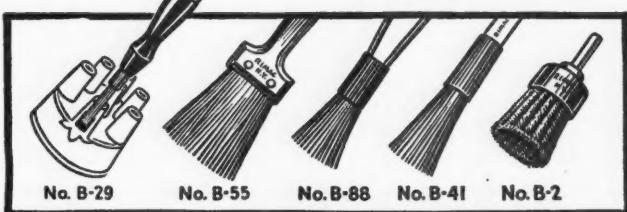
If you believe with Mr. Swensrud that “it is a sound thing for industry to support the Payroll Savings Plan . . .” and “. . . this type of thrift is good for the nation as well as the individual,” phone, wire or write to Savings Bond Division, U. S. Treasury Department, Washington, D. C. Your State Director will show you how your participation can be raised to 60%, 70% or even higher.

The United States Government does not pay for this advertisement. It is donated by this publication in cooperation with the Advertising Council and the Magazine Publishers of America.



MOTOR AGE

A complete stock of LONG LIFE WIRE BRUSHES from RIMAC



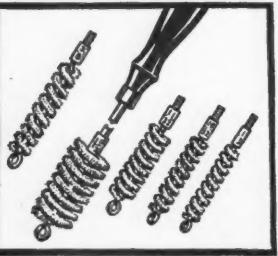
No. B-29 Distributor Head Brush. Quickly cleans and dresses distributor head sockets.

No. B-55 Buck Brush. Metal Handles. Excellent for cleaning small parts.

No. B-88 "Utility" Wire Brushes. Ideal for cleaning battery terminals and removing solder, chips, filings, etc.

No. B-41 Parts Cleaning Brush. Pig Bristles set in Rubber. Does not collapse in water, oil or gasoline. No metal—no sparks.

No. B-2 Rotary Wire Brush for use with electric drills.



Valve Guide Brushes. Interchangeable and economical. Five sizes handle 90% of passenger cars and light trucks.

Over all length 11".

1—"Heavy Duty" Wire Wheel Brush.

2—"Spiral Twist" Wire Wheel Brush Sections.



See your jobber or Write us.
RINCK-McILWAINE, INC. 16 Hudson Street, New York, N. Y.



Always keep a supply of finest quality Schrader Valve Cores for use in tube repairs. They're important to best tire performance!



You can order
Schrader #4000 Tire
Valve cores in bulk and
in these convenient sets of
5 for sale to motorists.



Schrader

See our ad
on page 79

A. SCHRADER'S SON

Division of Scovill Manufacturing Company, Incorporated

BROOKLYN 38, N. Y.

BEST REPLACEMENT EXHAUST HOSE ON THE MARKET!

CAR-MON
"NU-FLEX"
NEOPRENE-ASBESTOS
EXHAUST HOSE

MOST ECONOMICAL REPLACEMENT for all types of flexible exhaust hose in ventilating systems! Double layer of tough neoprene with crack-proof fabric wrap prevents leaks. Unique spiral steel wire "backbone" yields without clogging when driven over or stepped on . . . can be restored quickly to proper shape. Will not stiffen or deteriorate with use. Out-lasts, out-performs any other tubing!

ADAPTABLE—fits all types and sizes of ventilating systems (not for Dynamometer use).

CAR-MON PRODUCTS CO.
4554 BROADWAY
CHICAGO 40, ILL.

Designers and Manufacturers of All Types of CARBON MONOXIDE VENTILATING EQUIPMENT—Under Floor, Overhead Hanging and Disappearing.

FIND OUT HOW EASY IT IS
TO GET RID OF GAS FUMES
WITH A TESTED AND APPROVED

NATIONAL SYSTEM



ACTUALLY COST LESS!



"NATIONAL" invites you to write for free literature. There is no obligation.

**The NATIONAL SYSTEM
OF GARAGE VENTILATION INC.**
World's Largest Manufacturer of Exclusive Garage Ventilating Equipment
Dept. 406, 330 North Church Street, Decatur, Illinois

Announcing new 1954

DE SOTO AUTOMATIC

with new fully automatic POWERFLITE TRANSMISSION



Here, at last, is the car capable of carrying out sudden orders swiftly, silently and safely at all speeds

THIS IS A BIG EVENT. A new car is being introduced that may well be the newsworthy car of 1954.

It's the new De Soto Automatic on display at De Soto dealers right now. Not just new in appearance, it is new in its whole concept of driving ease, comfort and safety.

First, a new type of fully automatic transmission is on this De Soto, called POWERFLITE. Advantages: No clutch. Instant response without lag or lurch between gears.

This De Soto Automatic is powerful, too. You have your choice of the mighty Fire Dome V-8—now stepped up to a terrific 170 h.p.—or the famed, thrifty Powermaster Six.

No wheel fight from rutty, stony roads with Full-Time Power Steering. To turn sharp corners or to park is a one-finger job. Power Brakes stop you at a gentle touch. And if you wish, there's real De Soto Airtemp air conditioning.

Emphatically beautiful, this De Soto has completely re-styled interiors. Rich new fabrics are decorator-matched to car colors. Brilliant new instrument panel.

These are the high lights. There's much more to see. Your De Soto dealer is ready to show it to you—today.

Don't miss Groucho in "You Bet Your Life" on NBC Radio and Television. Presented weekly by De Soto-Plymouth Dealers.

DE SOTO
puts you ahead automatically!

How MILEY GIVES YOU A 3-WAY BETTER DEAL

on Bonded Linings

1.

MILEY IS THE ONLY SYSTEM USING

an UNCURED lining to insure a closer tighter fit; with no squeaks, no crumpling of lining—the bonding and final CURING is done at the same time—the lining is NEVER overbaked.

2.

MILEY BLACK GOLD "POLICE TESTED" BRAKE LINING IS

made to resist oil, grease, brake fluids and moisture. Its 70% metallic base, with low content of asbestos and fibre, will not score brake drums, gives a quicker, surer stop with longer mileage.

3.

MILEY MAKES ITS OWN BRAKE SHOES—

To insure absolute accuracy and quality control.

This 3-way combination is your guarantee of quality bonding—don't settle for less—remember

MILEYBOND IS YOUR BOND FOR SAFETY—SATISFACTION

Miley Jobbers everywhere will supply you with Mileybond Brake Shoes—with greater profit at less cost to you. Call one of them today.

L. J. MILEY CO.

Manufacturers of Brake Lining, Brake Shoes, Re-built Cylinders
18 S. SANGAMON • CHICAGO 7, ILLINOIS



Schrader 8052 coupler



**YOU CAN'T HAVE
TOO MANY
TIME AND
LABOR SAVING
AIR OUTLETS!**

Schrader

REG. U. S. PAT. OFF.

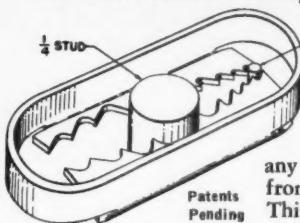
See our ad

on page 79

A. SCHRADER'S SON, BROOKLYN 38, N. Y.
Division of Scovill Manufacturing Company, Incorporated

UNI-NUT

The Universal Hi-Speed Clamp Nut



IT'S NEW

actual size— $\frac{7}{16}$ " long

UNI-NUT is the brand new spring steel clamp nut that locks securely on any round or rectangular stud from $1/16$ " to $1/4$ " inclusive. This wide range eliminates the need of a large and costly assortment and saves all the time wasted in checking a catalog and hunting for the size needed.

Using UNI-NUT you do not need a helper to fasten name plates, etc., even in the most inaccessible places. One man can do the complete job. They are easily installed and removed (as often as necessary) with the handy spreader which is included in the boxes of 100 and 500.

Time saved will pay for Uni-Nut—BUY A BOX TODAY!

If your jobber hasn't stocked as yet, tell him to write us or our distributor: Auto Vehicle Parts Company; Newport, Kentucky. In Canada: H. Paulin & Company, Ltd.; 10-16 St. Patrick St., Toronto.

Body Repairmen and Painters Wise,
Use UNI-NUT—They're All The Right Size

**STECK FASTENERS and
ANCHOR PLATES**

STECK MFG. CO., 1312 Bolander Ave., Dayton 8, Ohio

**Don't Be Misled!
All mufflers
are not alike!**



For nearly a Quarter-Century Porter Muffler has specialized in engineering and producing quality exhaust system products. To our dealers this has meant more buyer satisfaction, more repeat sales, and more profits! Write today for full information on how you, too, can build a more profitable future with Porter.

DEALERS! SEND FOR CATALOG PM-1



**PORTER STEEL-PACK
MUFFLER**
Lasts 2 to 5 times longer
than ordinary mufflers.



**PORTER HOLLYWOOD
MUFFLER**
"Echo Chamber" type.
New design (patent pending).

PORTER MUFFLER

MANUFACTURING CO., INC.
11820 W. Olympic • Los Angeles 64, Calif.



SOLATONE ANTI-CARBON UNIT

ELIMINATES CARBON
IN THE ENGINE!
REDUCES WEAR!
IMPROVES COMBUSTION

SOLATONE is not a filter... not a solvent, it is a catalyzer which disperses carbon and gum deposits and renders them non-abrasive and non-adhesive. SOLATONE is a positive preventive of abrasive formation.

SO EASY TO INSTALL!

...on both fuel line and oil lubricating systems of all types of engines.



Exclusive Territories Open For Dealer

A. B. HYDROCARBON SYSTEMS
2808 McKinney Ave. Dallas, Texas

HERE'S WHAT USERS SAY:

"...SOLATONE anti-carbon is a necessity for modern high compression engines..."

Racing Equipment Co.* "...head cylinders, pistons and rings remarkably clean..."

Leading Engine Manufacturer* "...SOLATONE units are all you claim and more..."

Racing Car Company* "...SOLATONE installed on my car produced outstanding results..."

Leading Oil Filter Manufacturer* "...this process is a remarkable new advance in modern technology..."

Chemical Engineer* "...Excerpts from letters in our files.

*Excerpts from letters in our files.

\$12.95

Exclusive Territories Open For Dealer



features:

- Grinds wet or dry
- Valve stem range $\frac{1}{4}$ " to $1\frac{1}{16}$ " with three collets
- Five-inch grinding wheel
- Valve head capacity up to $3\frac{1}{2}$ ", within valve stem range
- V-type table ways requiring no adjustment for wear
- Zero to 90° positive-stop face angle settings—with minus 1° for any angle
- Collet-type work head with controlled rpm's
- Concealed coolant system
- Right-hand table traverse arm
- Precision built for accuracy!

SEE YOUR
AUTHORIZED
K. O. LEE
DISTRIBUTOR
OR WRITE
FOR
COMPLETE
LITERATURE

K. O. LEE COMPANY, ABERDEEN, SOUTH DAKOTA
WET VALVE REFACTERS • VALVE SEAT GRINDER SETS • VALVE SEAT INSERTS
RESEATER SETS • ROD ALIGNERS • STUD WRENCHES • DRILLS • SANDERS
POLISHERS • HAND GRINDER SETS • REAMER DRIVES • A.C. WELDERS

BRAKE PARTS • BRAKE TOOLS • BRAKE FLUIDS

THE NAME



IS IMPORTANT TO
YOU BECAUSE



ON ANY
BRAKE PART IS
IMPORTANT TO YOUR
CUSTOMER

EIS AUTOMOTIVE CORP., MIDDLEBURY, CONN.

BRAKE PARTS • BRAKE TOOLS • BRAKE FLUIDS

GET THE FACTS

POWER

BELONGS IN YOUR ENGINE

KEEP IT THERE!



AUTOMATIC MECHANICAL
Self-Adjusting
TAPPETS

- Maintain proper valve timing at all times, under all engine temperatures.
- Greatly increase your effective power.
- Reduce your gas costs, and provide the quietest engine operation.

These facts are proved by the records. Every claim is substantiated by positive proof. No matter what part of the auto industry you're in, you have nothing to lose and everything to gain by writing today for complete information to Dept. M-11.

SKINNER-MOSER SALES Dunedin, Florida

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Why not double your gasoline volume?

Sunoco dealers sell more gallons by 2 to 1

Large market area

We all know that the bigger a dealer's market, the greater his potential. Our dealer policy guards against overlapping. Sun dealers compete with other brands, not with each other.

One grade—one price

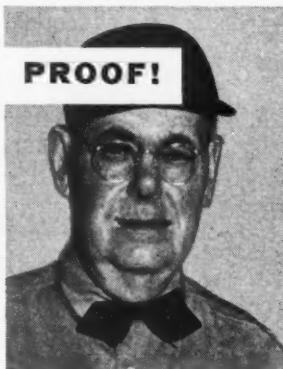
Our continuing emphasis on "high-test at regular gas price" has led to a customer loyalty that other gasolines cannot match. Once a motorist switches to Blue Sunoco, *he stays switched.*

Strong sales support

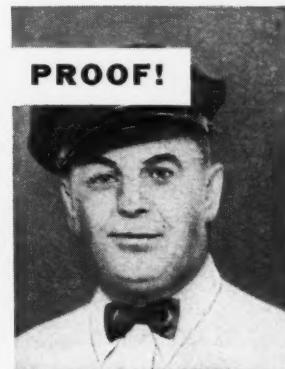
The company backs up the Sunoco dealer with millions of dollars worth of merchandising and advertising. Market experts keep him way ahead of competition.



YOU BELONG IN THIS PICTURE



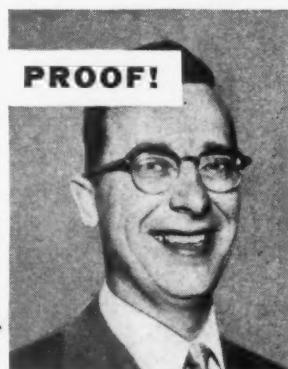
PROOF!



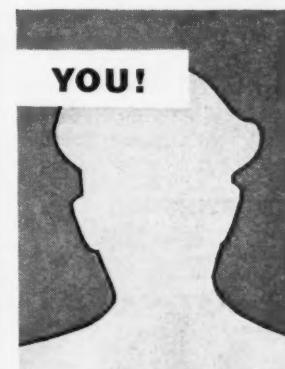
PROOF!

"I doubled my former gallonage when I switched to selling Blue Sunoco. And new customers keep coming in," says L. H. Bowing of Richmond, Indiana.

"Sold three brands of gasoline. Then the first year after changing to Blue Sunoco . . . increase of about 300%," says Theodore H. Benoit of Coventry, R. I.



PROOF!



YOU!

"Within less than a year I doubled my former gallonage when I switched to Sunoco," says Louis L. Janeski of Alpena, Mich.

Why not put yourself in this picture? There's *money* in it. Contact the local office of Sun Oil Company or write to Philadelphia 3, Pa.

NEW HUDSON DEALERS SIGN UP! OLD HUDSON DEALERS EXPAND!

...It's Operation "Big Swing"

to the all-new

HUDSONS FOR '54

NEW BUILDING!



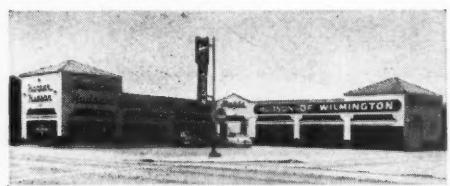
Woolverton Motors
North Hollywood, California

NEW DEALER!



Southern Hudson, Inc.
New Orleans, Louisiana

NEW DEALER!



Harbor Hudson
Wilmington, California

NEW BUILDING!



Pasadena Hudson, Inc.
Pasadena, California

HUDSONS ARE *all-new* for 1954: new power, new performance, new styling, new luxury, new power brakes*, new power steering*. What's more, with the Hornet, the Wasp and the Jet, Hudson dealers offer a Hudson series in almost every price field, including the lowest—a 94% coverage of the entire new-car market.

That's why present Hudson dealers are expanding their facilities. That's why more and more well-qualified, well-financed, well-established dealers are swinging over to Hudson.

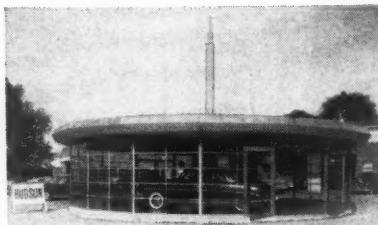
There are still a few Hudson franchises available in choice territories. For details, contact C. A. J. Hadley, Sales Manager, Hudson Motor Car Company, Detroit 15, Michigan.

*Optional at extra cost.

HUDSON

HORNET • WASP • JET

NEW DEALER!



Purdon Motor Co.
Lexington, Kentucky

NEW DEALER!



Hudson of South Florida, Inc.
Miami, Florida

NEW BUILDING!



M & T Garage
Angola, New York

NEW BUILDING!



Rieger Motors, Inc.
Dayton, Ohio

Ramco uses BOTH chrome and cast-iron contacts...
Each where it is most effective...that's why

YOU GET THE MOST Out of Chrome with RAMCO

THIS IS THE RAMCO
INNER-RING—
CONTACTS ONLY
THE CAST-IRON
OIL RING DURING
SEAT-IN PERIOD.

Note the extra
large oil
drainage slots...
pioneered
by Ramco
over twenty
years ago.

THIS IS THE RAMCO
FULL FLEDGED
CAST-IRON OIL RING
— it is SPECIALLY
COATED TO
INSURE QUICKEST
SEATING

Note that this is
a complete oil ring
... that is why it
can be relied on
for the major work
of oil control
during the
seating period.

THIS IS THE RAMCO
NO GAP SPIRO-SEAL STEEL
OR CHROME PLATED RING
WHICH REQUIRES
NO INNER-RING
PRESSURE
 WHATSOEVER TO
SEAT PROPERLY

Time instead of
increased inner-
ring pressure
is employed by
Ramco engi-
neering for the
seating of steel
or chrome
sections of
the oil ring.



MOST EFFECTIVE for quick seating is cast-iron contact. For long life...more horsepower...resistance to abrasion and scuffing...steel or chrome plated steel is best! In the 3-piece construction of Ramco 10-Up oil ring or the Ramcrome Chrome Plated oil ring described above, you get both advantages in one oil ring.

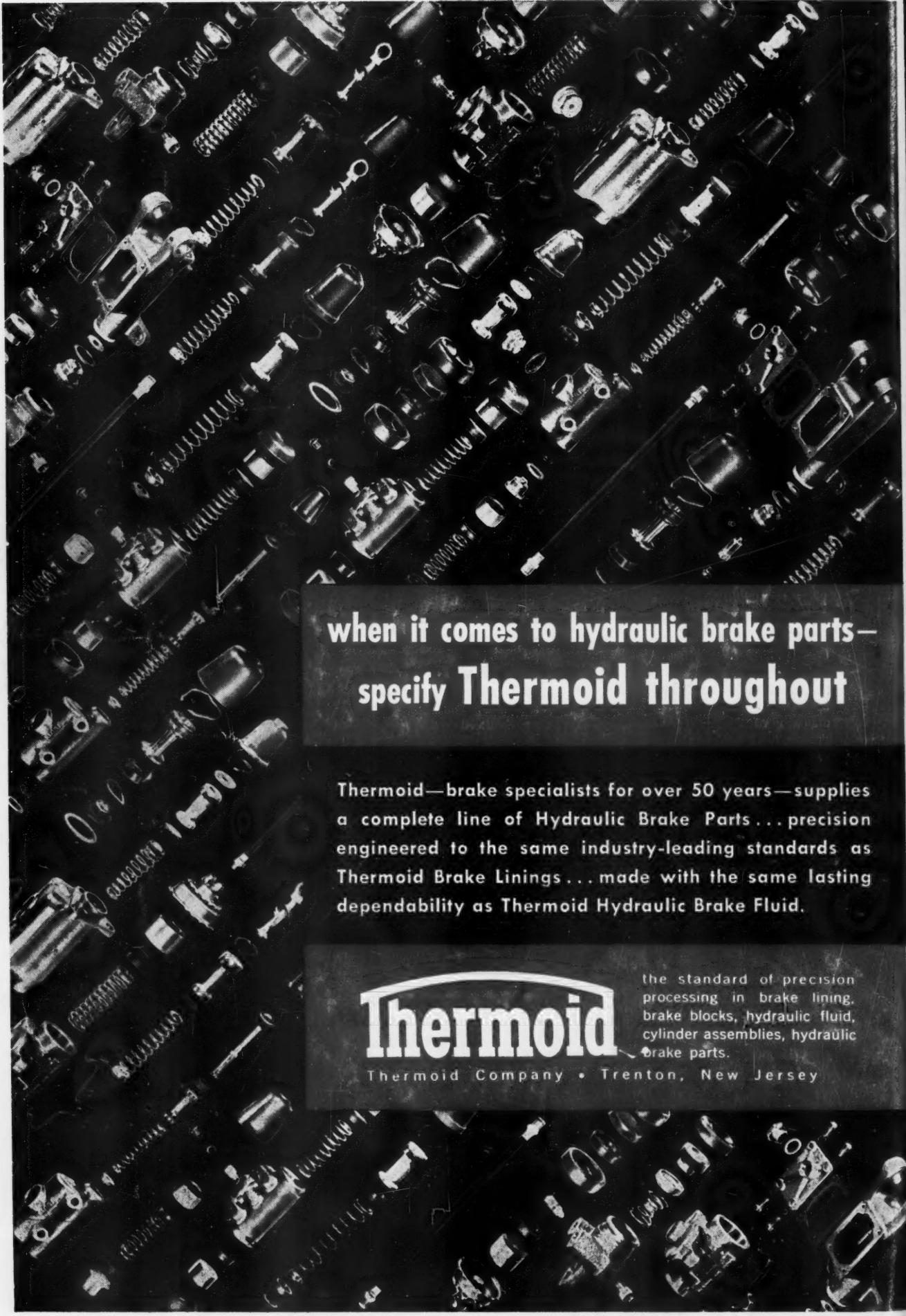
Ramco 10-Up sets are engineered to use chrome, steel and cast-iron contacts where each is most effective. That's why you are sure to do the job right when you call for Ramco. Try Ramco 10-Up regular and chrome plated sets for passenger car and heavy-duty service. See your Ramco Jobber today...

RAMCO *Quickest Seating* **Piston Rings**
Available with Exclusive No Gap Spiro-Seal in both regular and chrome sets.
RAMCROME *Chrome Plated* **10 up** **RAMCO** *10 up*

You Profit All-Ways with RAMCO

Ramsey Corporation
St. Louis 8, Missouri
A subsidiary of
Thompson Products, Inc.

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when it comes to hydraulic brake parts—
specify **Thermoid** throughout

Thermoid—brake specialists for over 50 years—supplies a complete line of Hydraulic Brake Parts... precision engineered to the same industry-leading standards as Thermoid Brake Linings... made with the same lasting dependability as Thermoid Hydraulic Brake Fluid.

thermoid

Thermoid Company • Trenton, New Jersey

the standard of precision processing in brake lining, brake blocks, hydraulic fluid, cylinder assemblies, hydraulic brake parts.

